THE SEA AND JAPAN'S STRATEGIC INTERESTS, 1975-1985

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ABSTRACT

Recent changes in military technology, commercial ocean uses and the law of the sea are examined in relation to their impact on seapower over the next decade. It is concluded that technical developments will significantly narrow the alternatives available to political decision makers during this period. In addition, the foundations of the freedom of the seas are rapidly being eroded, there are signs of increasing disorder at sea, and the utility of great power naval vessels as instruments of diplomacy may decline.

Elements of Japan's strategic interests and the status of the Maritime Self-Defense Force (MSDF) as of late 1974 are reviewed. Some potential changes in these interests and in the constraints on the armed services are outlined. Particular attention is given to pressures for and against a wider security role in the Western Pacific. Existing evidence suggests more continuity than change in Japanese foreign policy over the next several years.

The elements of seapower outlined in Part One then are applied to the strategic interests which were noted in Part Two. Japan's need for a balance of power at the global, regional and local levels is discussed, along with the role of naval forces

in securing such conditions. Some suggestions are made for future MSDF force structures. The concepts of protective, acquisitive and suasive commercial seapower are introduced, and Japan's potential is examined in each role. Though chances for suasion will be limited, maritime activities can offer some increase in Japan's resilience to foreign pressures. Her marine-related expertise and capital stocks also will be well-suited to acquire a wide variety of goods and services and to take advantage of new ocean development opportunities.

To my Parents

who have given me every opportunity

and

The United States Navy

which has given me this one.

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LIST OF ABBREVIATIONS

ADAWS	Action Data Automation Weapons System (U.K.)
ADIZ	Air Defense Identification Zone
AEW	Airborne Early Warning (Aircraft)
AF	Air Force
ARM	Anti-Radiation Missile
ASDF	Air Self-Defense Force (Japan)
ASM	Air-to-Surface Missile
ASW	Anti-Submarine Warfare
AWACS	Airborne Warning and Control System
BCAS	Bulletin of Concerned Asian Scholars
BMEWS	Ballistic Missile Early Warning System
C^3	Command Control Communications
CIC	Combat Information Center
CLB	Continuous Line Bucket System
CNSP	Council on National Security Problems (Japan)
CSE	Central Studies Establishment (Australia)
CTS	Central Terminal Storage (for Petroleum)
CVAN	Attack Aircraft Carrier, Nuclear powered
DDG	Guided Missile Destroyer
DDH	Helicopter Destroyer
DOMA	Deep Ocean Minerals Association
DPRK	Democratic People's Republic of Korea (North Korea)
DPRV	Democratic People's Republic of Vietnam (North Vietnam)
DWT	Deadweight Tons
ECCM	Electronic Counter-Countermeasures
ECM	Electronic Countermeasures
ECOR	Engineering Committee on Ocean Resources
EEC	European Economic Community
ELINT	Electronic Intelligence
EUSC	Effective U.S. Control Fleet
EW	Electronic Warfare
F4	U.S. Phantom II Fighter-Bomber
F4EJ	Japanese Variant of U.S. F4
F5	U.S. Fighter Aircraft primarily built for export
F104	U.S. "Starfighter" Aircraft
FAO	United Nations, Food and Agriculture Organization
FB	Fighter-Bomber

FBM	Fleet Ballistic Missile
FEER	Far Eastern Economic Review
FY	Fiscal Year
GNP	Gross National Product
GRT	Gross Registered Tons
GSDF	Ground Self-Defense Force
ICBM	Intercontinental Ballistic Missile
IDR	International Defense Review
IISS	International Institute for Strategic Studies (London)
IJN	Imperial Japanese Navy
ITI	International Trade and Industry (see MITI)
IWC	International Whaling Commission
JAMSTEC	Japan Marine Science and Technology Center
JDA	Japan Defense Agency
JMSDF	Japanese Maritime Self-Defense Force
JOIA	Japan Ocean Industries Association
JSP	Japan Socialist Party
LASH	Lighter Aboard Ship
LCT	Landing Craft, Tank
LCU	Landing Craft, Utility
LDP	Liberal Democratic Party (Japan)
LNG	Liquified Natural Gas
LPG	Liquified Petroleum Gas
LRMP	Long-Range Marine Patrol Aircraft
LSM	Landing Ship, Medium
LST	Landing Ship, Tank
LSV	Landing Ship, Vehicle
MDIJ	Marine Development in Japan 1972
MDN	Mainichi Daily News
MDP	Marine Development Program of Japan, Fiscal Year 1974
MIG	Common designation for aircraft designed by Mikoyan of the USSR
MITI	Ministry of International Trade and Industry (Japan)
MOBS	Mobile Ocean Basing System (U.S. Navy)
MSA	Maritime Safety Agency (Japan)
MSDF	Maritime Self-Defense Force (Japan); also JMSDF
MTS	Marine Technology Society (U.S.A.)
NADGE	NATO Air Defense Ground Environment
NKIW	Nihon Keizai Shimbun International Weekly
NPT	Non-Proliferation Treaty
NTDS	Naval Tactical Data System
OBO	Oil/Bulk/Ore Carrier
OECD	Organization for Economic Cooperation and Development

OPEC	Organization of Petroleum Exporting Countries
OTH	Over-the-Horizon (Radars)
OTH-B	Over-the-Horizon Backscatter radars
PFLP	Popular Front for the Liberation of Palestine
PIRAZ	Positive Identification Radar Advisory Zone
PRC	People's Republic of China
PT	Patrol Torpedo Boat
PXL	New Anti-Submarine Patrol Aircraft (Japan)
RAN	Royal Australian Navy
ROC	Republic of China (Taiwan)
ROK	Republic of Korea (S. Korea)
RO/RO	Roll-On/Roll-Off Ships
RPV	Remotely Piloted Vehicles
SALT	Strategic Arms Limitation Talks
SAM	Surface-to-Air Missile
SAR	Search and Rescue
SDF	Self-Defense Force (Japan)
SENIT	Systéme d'Exploitation Navale des Informations Tactiques
SIPRI	Stockholm International Peace Research Institute
SLAR	Side-Looking Airborne Radar
SLBM	Submarine-Launched Ballistic Missile
SODECO	Sumitomo Ocean Development and Engineering Company
SSM	Surface-to-Surface Missile
SSN	Nuclear Powered Submarine
SSPP	Solar Sea Power Plant
ULCC	Ultra-Large Crude Carrier
USA	United States Army
USN	United States Navy
USNI	United States Naval Institute (Annapolis)
USNIP	United States Naval Institute Proceedings
USSBS	United States Strategic Bombing Survey
VLCC	Very Large Crude Carrier
V/STOL	Vertical/Short Take-off and Landing (Aircraft)
VTOL	Vertical Take-off and Landing (Aircraft)

INTRODUCTION

This paper will examine Japan's ability to influence other states, and to protect herself from their influence, through the use of the seas. The scope of these uses, which together comprise a nation's seapower, is broader than usually realized.

The last few years have seen changes in naval technology and marine industries which will have a world-wide impact. In some fields, operational capabilities have exceeded the ability of governments to regulate them. In others, expansions of jurisdiction have outpaced the capacity for both exploitation and enforcement. For a few activities entirely new transnational institutions have been proposed.

In any case, politics and technology are inextricably entwined in ocean affairs. The reader therefore is asked to be patient with what may seem excessive technical detail. An effort has been made to include only that which is needed to understand the nature of current seapower and the physical constraints which have been imposed on the political process.

The time frame of the study will be roughly ten years. With a few exceptions, specific numerical forecasts have been avoided. In Japan's case, events since October 1973 have completely upset earlier projections of continued exponential

growth, while the studies that have been done to replace them predict everything from economic contraction to a return to pre-energy crisis expansion rates. Even for such a specific item as the demand for U.S. natural gas tankers, 1985 estimates vary between 29 and 84 (and between 29 and 180 for 1990)! Accordingly, the analysis has centered on possible reactions to alternative situations and on policies which offer the most flexibility under a variety of assumptions.

Part One will review some recent developments in military and commercial technology. Issues under negotiation at the Law of the Sea Conference also will be summarized to illustrate the depth and intensity of marine political problems. Attempts will be made to identify elements of continuity as well as change.

The second part will consider Japan's strategic interests and the current status of the Maritime Self-Defense Force as points of reference for later chapters. The latter's employment and development is restricted by several domestic and international conditions, which will be explored. Some possible evolutions of Japan's definition of her national interests and the limits on the Self-Defense Forces also will be included. Particular attention will be paid to pressures for and against an expanded naval role in the Western Pacific.

Finally, Part Three will look at the relationship between seapower and the interests outlined earlier. Two chapters will concentrate on military problems and potential. A third will be

devoted to commercial ocean affairs.

In general, metric units will be used herein. Many ocean issues, however, are defined in terms of nautical miles.* Mention of a 370.4 kilometer economic zone or a 22.2 kilometer territorial sea, for instance, would be strange even to the most metricized delegate at the law of the sea negotiations. In the interests of clarity, therefore, the terms most commonly used in discussions of a particular point have been retained. A conversion table will be found in Appendix One.

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*A nautical mile (6080.2 feet) is equal to one 60th of a degree of longitude at the equator, or very nearly one minute of latitude anywhere. Thus it is a convenient unit of measure on a chart. The international nautical mile is defined as 1,852 meters (exactly), or 6076.1 feet.

PART I

THE CHANGING NATURE OF SEAPOWER

THE CHANGING NATURE OF SEAPOWER

Introduction

Two key ideas have been central to classical writings on seapower (though they often have been left unstated).[1] The first is that the sea is a neutral medium. In Mahan's words:

> In itself, the sea is a barren tenure; only as the great common, the highway of commerce, the seat of communication, does it possess unique character and value.[2]

This principle has been crucial to the concept of freedom of the seas, and with it the free mobility of naval vessels.

The second, related, point has been that there is a clear distinction between the sea and the land: "Man marks the earth with ruin--his control stops with the shore"[3] (or at least at

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[1]Some of the major works after Mahan are: Julian S. Corbett, Some Principles of Maritime Strategy (Annapolis: U.S. Naval Institute, 1971), reprint of 1911 edition: Herbert Richmond, Statesmen and Seapower (Oxford: Clarendon Press, 1946); Bernard Brodie, A Guide to Naval Strategy, 4th ed. (Princeton: Princeton University Press, 1958); A. E. Sokol, Seapower in the Nuclear Age (Washington: Public Affairs Press, 1961); S. W. Roskill, The Strategy of Seapower (London: Collins, 1962); and Peter Gretton, Maritime Strategy (New York: Praeger, 1965).

[2]Alfred T. Mahan, The Problem of Asia (London: Kennikat Press, 1970), p. 52.

[3]George Gordon Byron, Lord Byron, Childe Harold (London: J. M. Dent, 1898), Ch. IV, clxxix, p. 184.

the three mile limit). The populations which have been important to governments have lived, and largely worked, ashore. With the exception of fish, resources and food also have come almost exclusively from the land. It follows that many of the great power rivalries of history (including the present one) have been cast as dichotomies between those which have influenced these populations and resources directly on land, and those which have used the more subtle tools of navies and maritime commerce.

These principles, together with the concept that superior force is the final arbiter of disputes, have underlain most strategies for maritime warfare. The subordination of military means to political ends usually has been acknowledged,[4] but such interactions have been seen mostly in the choice of the objective. Since World War II attention has shifted to more restricted arenas--non-nuclear warfare at sea, limited wars, counter-insurgency operations, etc. However, once the scope of the military activity was defined, it was expected that it would be possible to bring forces to bear which were commensurate with the potential threat.

By the late 1960s, however, it was recognized that major naval powers, at least those of the West, were operating under unfavorable asymmetries in the acceptability of force--

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[4]See B. H. Liddell Hart's criticism of past military practices in this regard in "The Objective in War," a lecture delivered at the U.S. Naval War College on September 24, 1952. Also, Bernard Brodie, War and Politics (New York: The MacMillan Company, 1973), passim.

particularly in the Third World. This spurred a number of studies of the uses of naval power in non-combat situations and under severe political constraints.[5] Even more recently, welcome attention has begun to be paid to the diplomatic potential of non-military maritime instruments.[6] The next four chapters will concentrate on three factors which may undermine the utility of great power naval forces as a political tool.[7]

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[5]Two pioneering works were: L. W. Martin, The Sea in Modern Strategy (New York: Praeger, 1967) and James Cable, Gunboat Diplomacy (London: IISS, 1971). See also, John T. Howe, Multicrises (Cambridge: MIT Press, 1971); and Edward Luttwak, The Political Uses of Sea Power (Baltimore: Johns Hopkins Press, 1974); other references are listed in the biography.

[6]See Joseph Kasputys, "The Evolving Role of the Merchant Marine as a Determinant of Seapower," Third International Seapower Symposium, U.S. Naval War College, Newport, R.I., 1973, pp. 134-170, and U.S. Naval Institute (USNI), To Use The Sea (Annapolis: USNI, 1974), Sections I and II.

[7]Definitions

(1) Great Power navies. These will be considered to be those fleets which can conduct operations on a world-wide scale, and which can single-handedly affect the global balance of power. At present, only the U.S. and the Soviet navies qualify for this status. In the past, of course, Britain, France, Holland, Spain, Portugal, Japan and Germany also have had such fleets.

(2) Middle Power navies. Despite the difficulties attendant to definitions of middle powers, it is somewhat easier to speak of middle power navies. They will be defined herein as those which seek to exercise command of the seas, for whatever purpose, beyond their own coastal waters, but not on a global scale. One such group of fleets would be those which operate within a well-defined geographic region, such as the Italians in the Mediterranean or the Iranians in the Persian Gulf. But other middle power navies, such as Australia and Canada, have no such finite boundaries, while the Indian Ocean, though it provides natural limits for the attention of New Delhi's forces, is too large to be the sole province of the present Indian fleet. (The mere possession of nuclear weapons, and even submarine-launched ballistic missiles (SLBM) is not considered sufficient

The factors are: (1) The current state of naval technology, (2) the growing economic importance of the oceans, and (3) the changing marine political climate. The first and third have augmented the usable power available to small and middle powers at sea. All three, it will be argued, have undercut the impartiality of the seas as medium of trade and communication, and have begun to blur the distinction between the sea and land itself.

The basic rationale for navies, indeed for all armed forces, still lies in answer to the question: "What options do you have if diplomacy fails?"[8] The factors to be discussed do not diminish the need for naval forces themselves, but they may alter the conditions which govern their use. It must be remembered, however, that naval force is only one component of seapower. Merchant fleets, geography, population, national productivity, etc. all have been a part of the equation in one writing

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to raise a navy to great power status.)

(3) The editor of Jane's Fighting Ships has identified two other types of forces: (a) the status-symbol navy--he uses Ghana for an example, and (b) the coast defense fleet. (See the forward to Jane's, 1973-74 edition, pp. 73-78.) An interesting statement concerning the latter unit was provided by Rear Admiral Walujo Sugito, Indonesian Navy, when he stated that his navy would develop: ". . . the capability in wartime to keep the border seas in dispute. [This ability], without gaining command at sea, could impede the advance movement of the enemy. If the enemy is superior, . . . we at least would have given the land forces enough time to make the necessary preparations . . ." Address presented to the Third International Seapower Symposium, U.S. Naval War College, October 17, 1973. (Emphasis supplied.)

[8]I am indebted to Admiral Arleigh Burke for this point.

or another.[9] The seapower that will be examined herein, however, is broader still. The ultimate aim will be to understand what leverage Japan or any other maritime nation can exert, and how it can insulate itself from the pressures of others, through the uses of the oceans--be they economic, military, scientific or recreational.

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[9]William Reitzer, in "Mahan on the Use of the Sea," Naval War College Review, XXV (May-June, 1973), pp. 73-82, makes the useful distinction between seapower (commercial movement) and sea force (navy) as subsystems of a nation's total maritime power.

Chapter One

TECHNOLOGY AND CONTEMPORARY NAVAL OPERATIONS

The Nature of Military Innovations

Changes in technology can affect military operations on three levels--tactical, strategic and environmental.[1] A given development may lead from one level to another in any sequence. The advent of steam, for instance, first transformed naval tactics by reducing some of the elements of chance inherent in wind and weather. In time, the need for coaling and maintenance led to a greater reliance on bases than had been the case in the days of sail, thus altering the strategic picture. Most important, however, was the fact that steam eventually helped destroy the indivisibility of the seas, which had been the key to British power in the 17th, 18th and early 19th centuries.

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[1] Tactics refers to the conduct of operations for immediate and specific objectives, usually when opposing forces are in contact. Strategy encompasses a broader scale of both position and objectives and generally applies to measures taken prior to the joining of forces. Environmental changes are those which alter the setting in which warfare as a whole is conducted. Bernard Brodie, in Seapower in the Machine Age (Princeton: Princeton University Press, 1941), pp. 90-91 and Chapter XXI, makes the distinction between tactical and strategic impacts of steam and ordnance developments.

So long as Britain controlled the waters from the North Sea to the Straits of Gibraltar during the age of sail, she controlled the oceans of the world, at least insofar as other European Powers were concerned. From the Armada (1588), through the Dutch Wars, to La Hogue (1692) and eventually Trafalgar (1805), the truly decisive naval battles were fought in European waters. There were important peripheral campaigns, to be sure--Suffren in the Indian Ocean, De Grasse in the Western Atlantic--but these were not crucial to England's overall supremacy.

Steam, however, enabled forces to be concentrated rapidly. Moreover, it (along with the development of the torpedo and the submarine), virtually destroyed the feasibility of the close blockade,[2] which the Royal Navy had used for so long to keep the fleets of her enemies separated. It also made the effectiveness of a force roughly proportional to its proximity to a base, whereas sailing ships had been much more independent.[3] The

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[2]A "close" blockade implies a cordon of ships around an enemy's harbor to detect his movements immediately, and bring him to action should he try to escape. See Arthur J. Marder, The Anatomy of British Seapower (New York: A. A. Knopf, 1940), for a description of the fiasco attendant to an attempted blockade during the Royal Navy's 1897 fleet problem. Legal problems associated with blockades by mines, submarines and more distant warships arose during both World Wars, without definitive resolutions. See C. John Colombos, The International Law of the Sea, 5th ed. (New York: David Mckay Company, 1962), Chapter XIX. The 1972 mining of Haiphong, supported by Seventh Fleet units in the Gulf of Tonkin, was similar to a close blockade, but only was possible since the U.S. had control of the air over the area.

[3]By 1904, the situation was exemplified by Jackie Fisher's famous comment that: "Five keys lock up the World! Singapore,

result was a beginning of a partitioning of the seas, an environmental change which has continued to this day.[4]

Telecommunication developments affected naval operations in a reverse order. The first impact was environmental, in that the transoceanic cable (1858) destroyed the sailor's monopoly of intercontinental communications. Thereafter, it was put to strategic use, ordering Dewey to Manila Bay (1898). Finally, tactical wireless equipment was installed in most of the major navies during the early years of this century. Its first combat use came in the Russo-Japanese War and was instrumental in the defeat of Admiral Rozhdestvensky at Tsushima (1905).[5]

The Cape, Alexandria, Gibraltar and Dover." (Quoted in Marder, op. cit., p. 473).

[4]The powers-that-be were not unaware of the implications of this technology. In 1828, the First Lord of the Admiralty wrote:

> Their Lordships feel it their bounden duty to discourage to the utmost of their ability the employment of steam vessels, as they consider that the introduction of steam is calculated to strike a fatal blow at the naval supremacy of the Empire.

(Quoted in Donald MacIntyre and Basil W. Bathe, Man-Of-War, [New York: McGraw-Hill, 1969], pp. 75-76.) Note that the partitioning also coincided with the rise of non-European seapowers. These, in turn, were aided by the rapid development of new equipment, which effectively forced the major navies to rebuild their fleets every few years.

[5]Linwood S. Howeth, History of Communications--Electronics in the United States Navy (Washington: U.S. Government Printing Office, 1963). Japanese data from Fukui Shizuo, interview July 22, 1974. Although the advent of telecommunications ended the seaman's role in international communications, it actually heightened the importance of seapower by resolving many of the command and control problems which had plagued admirals for

Aircraft have passed from tactical to strategic roles. In the sense that airpower has reduced the constraints of geography,[6] it has had an impact on the physical environment as well. However, as will be discussed below (p. 40), it is likely to be many years, if ever, before the skies will even begin to compare with the seas as a conduit of international commerce.

One of the most dramatic shifts which has affected the nature of seapower in this century has been the ability to project power directly from one's own heartland into an enemy's. Foreshadowed by World War II's strategic bombing, the process reached its culmination in the late 1950s with the development of the ICBM. No longer was seapower, through blockade or amphibious operations, the only link for the infliction of damage between an island state and a continental one. Naval power projection kept pace with advances ashore--first by increasing the range of naval gunnery, and then through airpower, from British seaplane raids on the North Sea zeppelin bases in 1914, to carrier-based nuclear weapons in 1949[7] and on to the

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centuries. Moreover, there are few, if any, recorded instances where control of the seas led to the capture of important dispatches, so the loss of the communications monopoly does not appear especially significant.

[6]The fact that these constraints still operate, however, was made clear by the need for enroute airfields during the Yom Kippur War airlift. These will partly be eliminated by the development of a mid-air refueling capability for transport aircraft, but only a few of the largest planes will be so equipped.

[7]See Norman Polmar, Aircraft Carriers (New York: Doubleday,

Submarine-Launched Ballistic Missiles (SLBMs) of the 1960s. These multiple systems added flexibility and survivability to strategic forces, but the advent of intercontinental weaponry itself eliminated much of the historic value of the sea as a "buffer" between great powers. With it went the ancient justification of so many arms races, namely the direct threat posed to Britain, and later the United States, by a strong navy in the hands of a state with a large standing army.

Recent developments in military technology also may be categorized according to their potential impact. Among those of current concern to naval planners are:

(1) The production of sophisticated ship-launched weapons systems such as surface-skimming missiles and their ready availability to coastal state navies worldwide. These weapons tend to favor the defender of inshore areas or restricted bodies of water.

(2) The increased effectiveness of aircraft against surface ships, particularly when equipped with electro-optically guided, laser-designated or other homing ordnance.

(3) The disparity between submarine and anti-submarine capabilities.

(4) Recent advances in strategic airlift.

(5) The possible deployment of real-time ocean surveillance systems.

(6) Developments in Command Control Communications (C^3).

1969) for a history of the development of naval sea-based aviation and the post-World War II in-fighting to keep the carriers in strategic warfare. Also Desmond P. Wilson, Jr., "Evolution of the Attack Aircraft Carrier: A Case Study in Technology and Strategy," in U.S., Congress, Senate and House Armed Services Committees, CVAN-70 Aircraft Carrier (hereafter CVAN-70 Hearings), 91st Cong., 2nd Sess., 1970, pp. 398-608.

The first two are tactical innovations. The third has both tactical and strategic implications. The fourth is strategic. Both the fifth and sixth are potentially environmental. One eventually may strip warship movements of the cloak of uncertainty which has been such an important part of past naval operations. The other may make decisive victories possible while the majority of an enemy's forces are still intact.

The size and scope of the world's research and development budgets point to many other significant changes in the next few years. Some of them also will be noted below. The factors to be examined in detail, however, are especially important in the context of the changing law of the sea and Japan's particular situation.

Tactical Developments

Any innovation which confines its effects to the realm of tactics is destined to be quickly superseded.[8] This is true even though such devices often seem to be the most "revolutionary" of inventions.[9] Nevertheless, improvements in a particular type of weapon and the countermeasures thereto may shift the advantage

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[8]Nowhere is this better illustrated than in the electronic warfare (EW) field, with its array of seekers, countermeasures (ECM), and counter-countermeasures (ECCM). See any recent edition of Jane's Weapon Systems (London: Sampson Low, annual).

[9]Brodie, op. cit., p. 91, makes this point with regard to the ironclad.

back and forth between attacker and defender through several cycles over many years. This seems to be the present case with homing ordnance, both surface and air-launched.

Anti-Ship Missiles

In late 1974, there were over twenty types of surface or submarine-launched anti-ship missiles (SSM)[10] which had been acquired or ordered by over forty navies. These are outlined in Table 1-1. Although these weapons were introduced in the late 1950s with the Soviet Scrubber,[11] they did not get widespread attention until they were used to sink the Israeli destroyer Eilat off Alexandria in 1967.[12] Styx missiles were distributed throughout the Warsaw Pact and to selected Third World countries during the 1960s, but Western systems have proliferated more rapidly in recent years. Table 1-2 illustrates their distribution.

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[10]Some sources use the abbreviation ASM (Anti-Ship Missile) for these weapons. Herein the letters SSM (Surface-to-Surface Missile) will refer to weapons launched from surface ships or submarines. ASM (Air-to-Surface Missile) will be used for those carried by aircraft. Note that some equipment, like the U.S. Navy's Harpoon, is capable of airborne, surface or subsurface launchings.

[11]Scrubber, Styx, etc. are NATO code names for Soviet SSMs.

[12]The missiles in Soviet hands always caused concern among Western analysts, but the response was mostly to develop countermeasures rather than systems of our own. The Eilat sinking certainly was the impetus behind the U.S. Harpoon SSM development, but the starting dates for some foreign programs (Sea Killer - 1963, Penguin - 1962) indicate that the danger (or the potential) was seen abroad somewhat earlier.

Table 1-1

ANTI-SHIP MISSILES

SURFACE AND SUBSURFACE LAUNCHED (SSM)

Originating Country	Missile Name	Type	Date Operational	Est. Warhead (kg)	Est. Range (km)	Number of Navies using or (ordering)
France	Exocet	4	1973	100	35	8 (6)
	SSM-12	3	1968	30	6	4
	SSM-11B	3	1967(?)	7.5	3	1
Great Britain	Sea Dart	2	1973	n.a.	30	2
	Blowpipe	3	1972	5	3	1
	USGW	5	Development	?100+	28	1
Israel	Gabriel	4	1971(?)	180	22/41	1
Italy	Otomat	4	1973	200	80	2
	Sea Killer mk3	4	1975	150	40	1
	Sea Killer mk2	4	1970	70	28	2
	Sea Killer mk1	4	1969	35	10	1
Norway	Penguin	3	1970	120	20	2
Sweden	RB 08A	1	1967	250	n.a.	1
U.S.	Cruise Missile	4	est.1977-8	Nuc?	n.a.	1
	Harpoon	4,5	1975	150?	55	1 (3)
	Standard	2	1972	70	20	1
USSR	SS-N-13	6	1975?	n.a.	650	1
	SS-N-11	4?	1968	n.a.	70	1
	SS-N-10	4?	1968	n.a.	70	1

Table 1-1 (continued)

Originating Country	Missile Name	Type	Date Operational	Est. Warhead (kg)	Est. Range (km)	Number of Navies using or (ordering)
USSR (continued)	SS-N-9	4?,5	1969	n.a.	275	1
	SS-N-7	4,5	1968	n.a.	56	1
	SS-N-3 (Shaddock)	1	1961-62	Nuc?	550	1 (1?)
	SS-N-2 (Styx)	1	1959-60	500?	42	16
	SS-N-1 (Scrubber)	1	1958-59	500?	240	1

Source: Jane's Fighting Ships 1974-75
The Military Balance 1974-75
Jane's Weapon Systems 1973-74
Aviation Week and Space Technology (Various Issues)
Note that much of the information is estimated, especially for Soviet Systems.

Key to Missile Types

1. First Generation, aircraft configuration
2. Modified Surface-to-Air Missile (SAM)
3. Small, wire guided or optical control
4. Sea Skimming Missile
5. Submerged Launch Capability
6. Ballistic

Table 1-2

DIFFUSION OF MISSILE LAUNCHERS (ESTIMATED)[a]

	1960	1962	1964	1966	1968	1970	1972	1974	1976
N. ATLANTIC	Soviet Missiles Western Missiles								
Socialist									
1.USSR(Ocean-Going)	12 -	80 -	166 -	242 -	266 -	314 -	364 -	432 -	480 -
2.USSR(Coastal)	32 -	126 -	210 -	274 -	338 -	402 -	466 -	530 -	530 -
3.Finland,Yugoslavia Warsaw Pact	- -	- -	36 -	136 -	160 -	172 -	176 -	176 -	176 -
West									
1.France, Greece, NATO (Less U.S.)	- -	- -	- -	- -	- -	- 6	- 123	- 310	- 434
2.U.S.(Atlantic)	- -	- -	- -	- -	- -	- -	- 20?	- 100?	- 300?
3.Sweden, Spain	- -	- -	- -	- -	- 2	- 2	- 6	- 12	- 34
W. PACIFIC									
Socialist									
1.USSR(Ocean-Going)	- -	10 -	66 -	122 -	122 -	126 -	126 -	126 -	150 -
2.USSR(Coastal)	- -	- -	16 -	48 -	80 -	112 -	140 -	140 -	140 -
3.PRC,DPRK,DRVN	- -	- -	- -	40 -	88 -	94 -	160 -	260 -	302 -

Table 1-2 (continued)

	1960	1962	1964	1966	1968	1970	1972	1974	1976
West	-	-	-	-	-	-	-	-	-
1.U.S.(Pacific)	-	-	-	-	-	-	20?	100?	300?
2.Australia, N.Z.,	-	-	-	-	-	-	-	-	-
Can(Pac.),Japan	-	-	-	-	-	-	-	-	20?
LDCs	-	24	30	36	36	36	44	44	44
1.Latin America	-	-	-	-	-	-	-	20	32
	-	-	-	-	-	-	-	-	-
2.W.Africa	-	-	-	-	-	-	-	-	-
3.Israel, Iran,	-	4	16	60	64	62	70	84	84
Arab States	-	-	-	-	24	100	128	152	198
	-	-	-	-	-	32	32	40	40
4.Indian Ocean	-	-	-	-	-	-	-	-	-
	-	8	20	24	24	24	24	24	24
5.East Asia	-	-	-	-	-	-	50	68	90

Source: Jane's Fighting Ships 1974-75, Weyer's Flottentaschenbuch 1973-74, The Military Balance 1973-74.

[a]This Table is only a rough approximation of relative power. For instance, the 6 km, 30 kg SS-12 is grouped with the 42 km, 500 kg Styx. Moreover, some of the Soviet equipment given to developing countries almost certainly inoperative, and estimates of Socialist systems may have considerable error. It also lacks figures for the massive amounts of arms recently sold to the Persian Gulf region. Nevertheless, it is hoped that this will give some indication of trends. Note also that Harpoon is compatible with launching equipment on nearly all U.S. submarines and surface combatants. Therefore, once the missile is operational in 1975, distribution will be limited by production rates rather than launcher rails.

The implications of this diffusion are important. In fact, given any sort of restraint by the maritime states, the missiles have the potential to redress the naval balance of power in inshore areas and restricted bodies of water. This alteration will be in favor of the coastal states at the expense of the major naval powers. This requires some explanation.

The modern surface warship is a highly sophisticated piece of machinery. Radars, communications antennas and electronic countermeasures domes are easily visible on most ships of frigate size or larger. If missiles are added, the complexity increases sharply. In order to save topside weight, many Western navies have adopted aluminum superstructures, thus effectively removing any protection for the transmitters, wave-guides, computers and other devices which often are located above the main deck. Although the ships are structurally sound, and their hulls capable of absorbing considerable damage, the vital electronics suit is quite vulnerable, even to schrapnel from a near miss.

This was dramatically illustrated in April 1972, when U.S.S. Worden was accidently damaged by an American air-launched missile which homed in on its radars in the Gulf of Tonkin. The offending weapon was a Shrike, whose warhead is considerably smaller than those of most of the SSMs now in service. Never-the less, Worden, an $80 million guided missile frigate, was virtually incapacitated, lost one man killed and nine injured,

and had to be towed to the Philippines for repair.[13]

Published data on the Soviet Styx, one of the oldest SSMs, indicate that shipboard warning time, once the missile is launched, is at most two minutes.[14] Moreover, many of the later designs fly at heights of two or three meters above the water (thus earning the name "sea-skimmer").[15] This profile complicates the problems of detection and fire control radar solutions while more sophisticated homing devices also make electronic jamming or deception more difficult. The ideal answer would be to destroy the launch-platform prior to firing. This is possible in the open sea, where the more sophisticated weapons and sensors of the larger ship might be decisive. In confined waters, however, such as straits, bays or gulfs, the advantage of surprise lies with the patrol boat, unless its opponent is maintaining airborne surveillance. It is perhaps worth noting that 43 of the 116 straits to be closed by a 12-mile territorial sea

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[13] New York Times, April 19, 1972, p. 1.

[14] The Styx's speed is rated at Mach 1 = 332 meters/second (643 knots) at sea level. Maximum listed range is 42 km, giving about 2 minutes and 5 seconds of flight time. So far, most combat launches reportedly have been at less than 20 kilometers. This decrease in range does not necessarily mean less warning, however, since the launching can be anticipated by ECM techniques.

[15] Presumably this imposes some limitations in rough weather, but the extent is not clear from published materials.

border developing countries.[16] Twenty-seven of these are bordered by states in possession of SSMs.[17] This will be discussed in more detail later.

Today, the most powerful surface warships of any navy are vulnerable to small craft in the narrow seas. This is not a new condition. Such ships always have entered restricted waters at their peril. Not only do they sacrifice the advantage of their long-range weaponry, but they also subject themselves to mines, torpedoes, small submarines, shore batteries, and a host of other devices which have long been used skillfully by coastal states.

There is an interesting parallel between the current SSM threat and that which was seen in the surface-launched torpedo around the turn of the century.[18] The latter eventually was met by improvements in gunnery ranges which made it possible to destroy attackers at a distance.[19] In time, an analogous

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[16]U.S., Department of State, Office of Geographer, Chart entitled "World Straits Affected by a Twelve Mile Territorial Sea."

[17]These include the important straits of Gibraltar, Hormuz, Bab-el-Mandeb, Malacca, Lombok, Sunda, and Ombai-Wetar. Were the Philippines, Bahamas and South Korea to get SSMs, the figure would rise to 37 out of 43.

[18]The years between the perfection of the Whitehead torpedo (1867) and World War I often heard predictions of the early demise of the battleship at the hands of the torpedo boat and later the destroyer. See Marder, op. cit., p. 123.

[19]So far as is known, only the Japanese 61cm oxygen torpedo of World War II could outrange a battleship's guns. Even so, most of its successes came at relatively close quarters in night actions.

solution may be found for the SSM, as helicopters, VTOL (Vertical Take-Off and Landing) aircraft, or RPVs (Remotely Piloted Vehicles--radio-controlled drones) are fitted in more and more ships. In the near term, however, ECM and point defense systems[20] will be the only available protection.

One effect of the SSM has been to expand the breadth of the coastal danger zone. Moreover, this has more-or-less coincided with the world-wide extension of the territorial sea and the heightened awareness of ocean affairs. (See Chapter Three.) In turn, these have increased the interest of coastal states in defensive systems. Thus it is significant that the later SSMs--such as Exocet (France), Gabriel (Israel), and Harpoon (U.S.), are basically pre-packaged rounds. Unlike the widely-distributed Styx, the more modern weapons require almost no maintenance. Thus they can be effective in the hands of relatively unsophisticated navies. Moreover, although the West has developed electronic countermeasures for some of the older Soviet missiles,[21] it is not clear that much attention has been given to defense against the Western missiles held by coastal states.

Much of the above discussion has dealt with conventionally-

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[20] A point defense system is a missile or gun installation with a high kill probability at short ranges. It is designed to protect only the ship on which it is mounted. The opposite approach is a long range, area defense weapon.

[21] Note the Israeli success in decoying Egyptian and Syrian Styxs during the Yom Kippur War.

armed SSMs against destroyer-sized targets. There are other applications of these weapons. One option would be nuclear warheads. Such devices, which may already be operational in some navies,[22] pose a potentially lethal threat to any floating target. They may well find employment in a general war, or a nuclear war at sea, but such scenarios are outside the scope of this paper.

Another problem is the vulnerability of aircraft carriers to SSM attack, particularly those launched by submarines. Much has been written about the survivability of these expensive ships,[23] and I shall not enter into that debate. I feel, however, that they are not in very much danger outside of a U.S.-Soviet encounter.[24] To attack an aircraft carrier is almost certainly to go beyond the threshhold of retaliation for a coastal state. Even during the Vietnam War, Hanoi made no serious effort against Yankee Station. Fast patrol boats are not likely to get close enough to a carrier to do much damage,

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[22] As noted in Table 1-1, the Soviet SS-N-3 is believed to have a nuclear warhead. In any case, the nuclear-capable shipboard SAMs (such as Talos) could be used in an air-burst mode. The ballistic SSNX-13 also may be nuclear.

[23] See, for instance, the CVAN-70 Hearings, op. cit. (note 1-7), and Paul Schratz, "The Nuclear Carrier and Modern War," U.S. Naval Institute Proceedings (hereafter USNIP), XCVIII (August 1972), pp. 18-25, with comments in the issues of December 1972, p. 88, and April 1973, p. 86. Other criticisms of the carrier have been contained in a number of articles by A. Kusmak of the Brookings Institution.

[24] The present rate of arms transfers to the Persian Gulf and Eastern Mediterranean could make these very dangerous areas for the carriers before too long, however.

and few coastal states will have a submerged launch capability.

The actions between missile-armed patrol boats themselves have been especially interesting. Although India employed the Styx with considerable success during the 1970 war with Pakistan,[25] the first test involving SSMs on both sides seem to have come in the night actions between Egyptian, Syrian and Israeli boats during the Yom Kippur War. The Gabriel missile performed well. The Israelis also apparently confused the Styx guidance systems with relatively compact ECM equipment, thus raising hopes for future encounters with such threats.[26] It should be noted, however, that the ships were at general quarters prior to the engagement, thus minimizing the chances of surprise. Moreover, the maneuverability of the small patrol boats facilitated last-minute evasions while the presence of multiple targets may have misled the Arab missiles. In short, it is not clear how applicable these lessons are to larger warships. Certainly they were of little help to the South Vietnamese frigate sunk by Chinese SSMs off the Paracels in 1974.

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[25] Ravi Kaul, "The Indo-Pakistani War and the Changing Balance of Power in the Indian Ocean," USNIP, XCVII (May 1971), pp. 172-195, presents the Indian view. A Pakistani outlook is given by M. I. Butt in the "Comment and Discussion" section of USNIP, XCIX (November 1973), p. 88. D. P. O'Connell notes the damage to neutral merchantmen caused by errant missiles in "Can The Navy Plan For Peace?" New Scientist (U.K.), October 25, 1973, p. 257.

[26] Aviation Week and Space Technology (hereafter Aviation Week), December 10, 1973, p. 20. An Israeli account is given by Shlomo Erell, "Israeli Saar FPBs Pass Combat Test in Yom Kippur War," USNIP, C (September 1974), pp. 115-118.

Aircraft vs Surface Ships

Across the Song Ma river in North Vietnam is the Thanh Hoa bridge. Between 1965 and 1967, American pilots flew nearly 700 sorties, dropped 1250 tons of ordnance, and lost 8 aircraft trying to destroy it.[27] Such are the stories on which sailors build their hopes. If a fixed target withstood that much punishment (although bridges admittedly are difficult to destroy because of the amount of open space and inherent structural strength), surely a maneuvering ship would have even a better chance.

On March 12, 1972, the Thanh Hoa bridge was attacked by a single flight of aircraft using newly perfected laser-designated ordnance and destroyed with a direct hit.[28]

The threat posed by terminally guided air-launched weapons to ships at sea is considerable. In the few times that a match

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[27]Malcolm W. Cagle, "Task Force 77 in Action Off Vietnam," USNIP, XCVIII (May 1972), p. 104. So indestructable was the bridge that new theories were developed to explain its resilience. One of these was: ". . . that the earth was composed of two giant elliptical hemispheres, spring hinged somewhere beneath the South Atlantic Ocean and clamped firmly shut on the other side by the Thanh Hoa bridge. This theory had it that if the Thanh Hoa bridge were ever destroyed, the world would snap open, flipping man and beast thither and yon, and upsetting the gravitational balance of the universe." Ibid., p. 105.

[28]New York Times, May 24, 1972. Laser-designated means that the target is illuminated by a laser beam either from an aircraft or from the ground. The attacking aircraft releases its weapons in the general vicinity of the target, and a seeker attached to the bomb aims it at the point "designated" by the laser. The Thanh Hoa destruction is even more impressive since the bridge had been hit by the television-guided Walleye bomb as early as 1967. Despite the accuracy, however, the Walleye damage was minor. (Cagle, p. 97).

has been made, the results have been impressively in favor of the aircraft. In 1943 the Germans introduced a primitive radio-controlled glide bomb in the Mediterranean. In its first test it sank the new Italian battleship Roma on its way to surrender. The weapon seriously damaged a number of vessels off Salerno, and later was to plague the Allies off Anzio. For some reason, it was not used again in the war, but the potential was clear. Excluding the Kamikaze, which, after all, had a special form of terminal guidance, warships did not face such weapons again until the late 1960s, when H.M.A.S. Hobart, and later U.S.S. Worden were accidently hit by U.S. missiles.[29] Although neither ship was in any danger of sinking, they were rendered hors de combat by relatively small warheads not designed for the anti-shipping role. Under such conditions, the damage that might result from a 250 or 500 kg built-for-the-purpose ASM hit is sobering to imagine.

Table 1-3 represents an inventory of the homing or laser-designated weapons now in production or under development which have anti-ship missions at least as part of their tasks. While these are not yet so widely distributed as the SSMs, their proliferation probably will not be long delayed, especially in light of the sophisticated arms now flowing to the Middle East.

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[29] H.M.A.S. Hobart, an Australian guided missile destroyer, was hit by two Sidewinder air-to-air missiles in June 1968, when a U.S. pilot mistook her for a North Vietnamese helicopter. The 1972 Worden incident was noted above (p. 21).

Table 1-3

AIR-TO-SURFACE MISSILES AND HOMING ORDNANCE

Country	Name	Guidance	Est. Warhead (kg)	Est. Range (km)
France	AS.11	1	15	3
	AS.12	1	28	6
	AS.20	1	30	7
	AS.30	1	230	12
Germany	Kormoran	4	250	37
	Jumbo	2	nuc/conv	n.a.
Great Britain	Hellcat	1	10?	3.5
	Skua	3	20	19?
International	Martel AJ.168	2	n.a.	28-55
	Martel AS.37	6	n.a.	28-55
	Otomat	4	n.a.	64-370
Japan	ASM-1	?	140	46
Sweden	RB 04 E	4,6	300	28-39
	RB 05 A	1	150	n.a.
U.S.	Bulldog	5	n.a.	n.a.
	Bullpup	1	113-nuc.	16
	Condor	2	227	65-83
	Walleye I	2	385	bomb
	Walleye II	2	907	bomb
	Shrike	6	50	13-17
	Maverick	2	59	n.a.
	Hobo	2	907/1360	bomb
	Paveway	5	225/340/	bomb
			407/1360	bomb
	Harpoon	4	340	55
	Standard ARM	6	n.a.	25
USSR	AS-1 "Kennel"	4	1000?	90
	AS-2 "Kipper"	4	nuc.	213
	AS-3 "Kangaroo"	4	nuc.	650
	AS-4 "Kitchen"	4	nuc.	740
	AS-5 "Kelt"	4	n.a.	220
	AS-6 -	4	n.a.	550?

Source: Jane's Fighting Ships 1974-75
Jane's Weapon Systems 1973-74
The Military Balance 1974-75

Guidance Codes:
1. Wire Guided/Radio Command
2. Electro-Optical
3. Semi-Active Homing
4. Active Radar Homing/Infrared
5. Laser designated
6. Anti-Radiation Missile (ARM)

The introduction of such weapons does not alter the long-standing principle that ships should not venture into the range of land-based aircraft without air cover of their own.[30] However, it does downgrade the size and proficiency level of the air fleet which is to be considered a strong threat. As with the SSMs, pre-packaged ASM rounds can be nearly as dangerous in unskilled hands as skilled ones. In those states with already proficient ground attack or marine patrol squadrons, they lend credence to the arguments that the air force should be assigned a larger role in coastal defense.[31]

In one sense, however, the advent of both ASMs and SSMs has simplified the problem for the defender in that a point-defense system designed for one may be able to deal with the other. There are several such possibilities, ranging from short-range missiles to aircraft 20mm cannon with firing rates on the order of 6000 rounds per minute.[32] In a longer time frame the use of laser-designated projectiles fired from guns

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[30]See Vice Admiral Sir Arthur Hezlet, Aircraft and Sea Power (New York: Stein and Day, 1970), passim.

[31]The U.S. Air Force has shown an increased interest in such a mission since at least the early 1970s. Conclusions supporting greater Air Force participation in maritime operations also were reached by the Australian Maritime Airpower Study Group. Captain J. A. O'Farrell, R.A.N., to author, June 19, 1974.

[32]Some of the best writing on this subject is contained in the brilliant articles by Desmond Scrivener, "Weapons for the General Purpose Escort," International Defense Review (hereafter IDR), #3/1973, pp. 331-336 and "Escort Ships--An Alternative Solution?" IDR, #4/1973, pp. 460-463.

may shift the balance back in favor of the defense.[33]

In short, the ASM and SSM represent a phase of the offense-defense cycle which definitely favors the attacker. But, as one respondent put it, the surface ship is too valuable a tool to "roll over and die."[34] In time, technology will find a counter to today's threats, even though new ones will arise in their place. Nevertheless, for most of the period covered by this study, all but the most sophisticated ships will be vulnerable to the armed forces of small coastal states which heretofore have posed few dangers.

Other Tactical Innovations

The addition of an air capability to medium-sized combatants, will greatly increase the tactical effectiveness of single ships in both surface and ASW roles. It also will enhance their defensibility against most forms of attack. As noted earlier, shipboard aircraft eventually may reduce the SSM threat in the same way that long range gunnery reduced that of the torpedo boat--by making it possible to destroy an attacker before he can get close enough to launch his weapons. Moreover,

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[33]The U.S. Navy is developing laser seekers for shore-bombardment projectiles. Congress evidently has been satisfied with the program to date. See U.S. Congress, House of Representatives, Armed Services Committee, Report 93-1035 Authorizing Appropriations for Military Procurement and Research, Development, Test and Evaluation, 93rd Congress, 2nd session (Washington: U.S. Government Printing Office, 1974), p. 45.

[34]Mr. Geoffrey Jukes, Australian National University, interview, June 18, 1974.

in inshore waters, aircraft would permit reconnaissance before the ship itself was placed in danger. However, the kinds of vehicles to be found on destroyer-type ships will be no match for shore-based, fixed-wing machines. More importantly, they will not be continuously operable, and will be legally restricted within the territorial sea. Thus, the danger of an effective sudden strike by a coastal state remains in those situations on the borderline between diplomatic and forcible solution.

Shipboard lasers will enter naval inventories in the next few years, probably as range-finders or designators for bombs or shells. The state-of-the-art in high-energy equipment (death rays, as it were) is very highly classified, but perhaps they will appear in point-defense roles before too long. Still, as optical devices, they still will be subject to atmospheric limitations.

The most rapidly changing, and perhaps the most important, military field is that of electronic warfare (EW), some of which was discussed in the previous section. Airborne EW equipment was absolutely essential to the air war over Vietnam and to the Israeli successes in the Middle East, and such devices have a full range of shipboard counterparts. Tactical data systems[35]

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[35]These are shipboard digital computer systems to assist in command and control functions. Examples are the U.S. Navy's NTDS (Naval Tactical Data System), Britain's ADAWS (Action Data Automation Weapons System) and France's SENIT (Systéme d'Exploitation Navale des Informations Tactiques). It may not be an exaggeration to say that effective anti-aircraft or anti-missile operations have become impossible without such automated information processing.

already have transformed the internal organization of warships,[36] and promise to be extended still further. A side effect will be more pressures for international standardization, if not in hardware, then at least in software to permit interfacing between national systems. It may be, someday, that battles will be decided by EW operators before the weapons are even launched, but the balance is shifting back and forth so rapidly that it is difficult to make any long-term statements about it.

With speeds in the 40-100 knot range, surface skimming vehicles can greatly improve naval mobility and flexibility. Hydrofoils probably will continue to be limited to tactical roles because of size and range restrictions. However, surface effect ships or Wing-in-Ground-Effect transports eventually may grow large enough and numerous enough to become a factor in strategic planning. Given enough capacity, they could reduce the need for overseas bases. Nevertheless, such breakthroughs will not come quickly, and for the next few years, surface skimmers probably will be confined to relatively near-shore operations.

Often overlooked, but of major importance, are mines. Though there have been few dramatic breakthroughs, the potential

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[36]For many years the naval professional literature has been full of debates about whether or not a commanding officer should fight his ship from the traditional position on the bridge, or from the integrated sensor environment of Combat Information Center (CIC). Having apparently been decided in favor of the latter, the question now arises of how far weapons release authority must be delegated to effectively respond to the ultra-short warning times of modern threats.

of modern devices has become so great as to have both tactical and strategic implications. These will be discussed in Chapter Nine.

Finally, there are environmental modification techniques. Proposed activities range from localized rainmaking, as was practiced in Vietnam, to selective destruction of the earth's ozone layer, and "acoustic fields on the sea and ocean surface to combat individual ships or whole flotillas."[37] It must be remembered that such operations currently are directed at naturally unstable situations, where the relatively small energies which man can introduce into the system may tip the balance one way or the other.[38] As such, artificial tidal waves and typhoons are still mostly in the realm of science fiction. However, even small-scale successes could have dramatic, if unpredictable, effects on navies. One can imagine a group of scientists trying to keep a task force hidden in bad weather while the opposition seeks to bathe it in sunshine.

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[37]Resolution submitted by the Soviet Union to the United Nations to ban such activities. Reported in The Washington Post, October 23, 1974, p. A27. It is not clear what is meant by "acoustic fields." Perhaps they simply refer to the Western hydrophone arrays noted below. Alternatively, they might be sonic devices designed to blank out or deceive sonars. The use of acoustic energy for destructive purposes at any distance is rather limited by the laws of physics.

[38]I am indebted to Captain Don Walsh, U.S. Navy, for this point.

Strategic Developments

Submarine vs Anti-Submarine

From the dark days of 1941 and 1942, the Allied anti-submarine warfare (ASW) rebounded spectacularly. Towards the end of World War II, the advantage in a contest between a submarine and its pursuers lay almost entirely with the latter. The primary reasons were four-fold. First, the development of high-frequency sea and airborne radar denied the submarine the time on the surface to increase its operating radius and recharge its batteries. Second, the availability of escort carriers made it possible to provide air cover for merchantmen all the way across the Atlantic. Third, improvements in sonar capability, operator skills and escort tactics gave a better chance of detecting a submarine prior to attack. In any event, the speed disparity between a submerged submarine and a surface escort (6-7 knots vs. 20-35) left the initiative with the surface ship once the sub was located. Finally, and perhaps most important, the organization of Allied ASW had greatly improved. High-frequency direction-finder stations ringed the Atlantic, and got generalized fixes as the U-boats sent their nightly messages to Admiral Doenitz. The U.S. Navy established the Tenth Fleet in May 1943 to coordinate anti-submarine activities.[39] Better cooperation was achieved between British and American authorities.

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[39]Ladislas Farago, The Tenth Fleet (New York: Ivan Obelensky, 1962).

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[39]Ladislas Farago, The Tenth Fleet (New York: Ivan Obelensky, 1962).

specialist today, and the tactical advantages of the submarine can only be offset by the coordination of divers assets. It is for this reason, as well as the high stakes involved in defending the Atlantic and Pacific sealanes, that ASW is classed as a strategic problem.

Extensive efforts have been made to identify submerged submarines. Each ship has a characteristic sound spectrum which can help to distinguish it, and these have been meticulously catalogued over the years by NATO and, presumably, the Warsaw Pact. Such files would become particularly important in the event of guerrilla submarine operations, or if belligerent and non-belligerent units were operating in adjacent areas.

This paper is not directed at the problems of submarine war between the U.S. and the USSR, but the concept is, at least, feasible. In the process, it raises some difficult questions. If unidentified submarines began sinking Japanese merchantmen, would this be a justification for U.S. retaliation?[41] On what scale? Suppose the ships were U.S.-owned but registered under a flag of convenience? Even if they were American ships under the U.S. flag, would that be worth a nuclear exchange? If not,

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[41]Technically not, according to the strict reading of the U.S.-Japan Security Treaty. Article VI obligates mutual assistance only in the event of an attack on one or the other's units "within the territory under the administration of Japan." Merchantmen are not sovereign territory under international law as warships are.

could a conventional war at sea be kept from escalating?[42]

Two additional points are worth noting. First, the majority of the non-ballistic missile submarines in the world today are non-nuclear (139 to 605).[43] Furthermore, the nuclear attack boats are possessed by only three countries, although more reportedly are planned.[44] Thus, unless the U.S. or USSR were directly involved in a war at sea, it is likely that the threat would be posed by non-nuclear craft. These are capable units,[45] especially in the vicinity of the coast. Moreover, they also have proliferated in recent years. In 1974 no fewer than 36 navies had submarine arms, up from 30 six years before.

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[42]Both Martin, op. cit. (note I-5), Chapter IV, and Gretton, op. cit. (note I-1), Chapter 7, admit the possibility of extended conventional war at sea. Martin argues that tactical nuclear weapons probably would not be used until the strategic threshold was crossed. Gretton speaks of a "Grey War" against sea lines of communication. It is my own view that, in a hard-fought sea war escalation might be difficult to prevent if for no other reason than that a commanding officer might expend all his conventional ammunition and be faced with the choice of using the nuclear devices or losing his ship. (In such an emergency, the principles of two-man control also might be circumvented.)

[43]Jane's Fighting Ships 1974-75, p. 642.

[44]The U.S., Britain, and the USSR. Reports persist that the People's Republic of China is building an SSN. France planned to include a new fleet submarine in the 1974 budget, after years of postponements.

[45]According to Australian sources, the British Oberon Class is the quietest submarine in the world. Central Studies Establishment personnel, interviews, June 19, 1974. See also Gene La Rocque, "The Nth Country Submarine/ASW Problem" in K. Tsipis, A. H. Cahn and B. T. Feld (eds.), The Future of the Sea-Based Deterrent (Cambridge: The MIT Press, 1973), pp. 233-258.

These doubtless will be augmented soon by transfers from the U.S. and Soviet fleets, as well as sales of European designs.

The possession of similar craft by several states could raise serious identification problems in the event of unacknowledged submarine attacks. Such acts are not unprecedented. Italian submarines torpedoed British, French, Spanish, Russian and Danish vessels bound for Republican Spain during July and August 1937,[46] and again in 1938.

This leads to the second point, namely that it will take organization to defeat a submarine threat or perhaps even to identify it. Unconventional approaches, such as containerized helicopter support systems aboard merchantmen, may offer relatively low-cost solutions to tactical problems. These will be examined in later chapters. But the greater difficulties of early warning and target localization will require a complex, wide-area intelligence network. This is something which the major powers, particularly the U.S., would be in a position to offer in the event of such "Nth Country" submarine attacks.

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[46]See Robert Goldston, The Civil War in Spain (Greenwich: Fawcett, 1966), pp. 163 and 176. Also, James W. Cortada, "Ships, Diplomacy and the Spanish Civil War: Nyon Conference, September 1937," Il Politico, XXXVII, #4 (Diciembre 1972), pp. 673-689. Although all governments knew who was responsible, the charges could not be proved and so diplomatic fiction was preserved to the extent of giving Italians the responsibility for ASW in one sector! Whether or not today's acoustic identification would be better grounds for indictment remains to be seen.

Sealift and Airlift

Despite the increasing capacity of cargo aircraft, the merchant ship continues to be the foundation of the international movement of both military and civilian goods. In the United States, in 1969, 79.65% by value and 99.8% by weight of U.S. exports went by ship.[47] Figures for other industrial countries are comparable.

Moreover, with the advent of industrialization, maritime commerce developed further strategic importance. Guerre de course has been an important part of naval activities since the days of mercantilism. Piet Heyn's capture of a silver flota off Cuba in 1628 was a devastating blow to Spain's financial credit in Europe.[48] During the time of Louis XIV, commerce raiders took as proportionately heavy a toll of British shipping as the U-boats of 1917 and 1942.[49] But, since the only real strategic materials of that period were masts and naval stores, there was not the danger of starvation or industrial paralysis which characterized the blockades of Germany and Great Britain during World War I and Japan and Great Britain during World War II.

In the military sphere, the strides made by strategic

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[47]Office of the Chief of Naval Operations, U.S. Lifelines-09D-P1 (Revised), June 1971.

[48]J. H. Parry, The Spanish Seaborne Empire (Middlesex: Pelican Books, 1973), pp. 261-262.

[49]Robert G. Albion and Jennie B. Pope, Sea Lanes in War-time (New York: W. W. Norton & Co., 1942), Chapter 1.

airlift were dramatically demonstrated by both the U.S. and the USSR during the 1973 Yom Kippur War. In 566 missions between October and December 1973, U.S. C-5 and C-141 aircraft delivered 22,395 tons of supplies, the Soviets 15,000 tons in 934 missions.[50] The importance of these figures was not so much in their size--over 13,000 tons were delivered in one day during the height of the Berlin airlift--but in the distances over which they were carried. It is nearly 12,000 kilometers between Dover Air/Force Base in Delaware, where the airlift began, and Lod airport in Israel. By contrast, Tempelhof airfield in West Berlin was less than 220 kilometers from some of its supporting bases.

The rapid response capability of aerial transport has become an indispensable part of modern warfare. Yet the movement of the quantities of equipment needed to support extended operations and even to replenish stocks expended in short, high-intensity combat remains the domain of sealift. The Chairman of the U.S. Joint Chiefs of Staff had high praise for the Military Airlift Command's effort during the Middle East War, but added:

> Not so well publicized is the fact that from October 6, 1973 to date (May 3, 1974) sealift accounted for over 70% of the total tonnage moved.[51]

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[50] Aviation Week, December 10, 1973, pp. 16-19.

[51] Admiral Thomas H. Moorer, USN, speech to the Jacksonville Council of the Navy League, May 3, 1974. Quoted in Navy Times (Pacific), May 22, 1974, p. 13.

In Vietnam, well over 95% of the material arrived by ship.[52] It can be argued, of course, that it would have been better had we not had the capability to sustain that effort, but that does not detract from the potential of shipping itself.

None of the post-World War II airlifts, from Berlin to Lebanon, to the Congo, Vietnam and the Middle East, were seriously opposed (except for diplomatic problems involving overflight). Neither were the post-war sealifts, with the limited exception of the North Korean mines off of Wonsan in 1950. The impact of active resistance on modern logistics remains untested.

The role of sea transportation in a general war is difficult to imagine. See, for instance, Peter Gretton's critique of NATO resupply strategy in his Maritime Strategy.[53] Neither is a "Grey War" against the sea lanes alone very credible.[54] Nevertheless, a mine or submarine campaign against the British Isles, Japan, or Taiwan at least is technically feasible. Japan's strengths and weaknesses in the face of such a threat will be

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[52]Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs. Statement before the Sea Power Subcommittee of the House Armed Services Committee (hereafter Blackwell Testimony). September 19, 1974 (Mimeo), p. 74.

[53]Gretton, op. cit. (note I-1), pp. 76-80 and 190-191.

[54]Michael MccGwire has provided a convincing rebuttal to scenarios of a Soviet attack on Western shipping alone. See his "The Submarine Threat to Western Shipping" in J. L. Moulton, British Maritime Strategy in the Seventies (London: Royal United Services Institute, 1969).

explored in detail later. It is worth noting, however, that although strategic airlift may be invaluable in the delivery of weaponry and other war materiel, there is little that it can do to sustain an overall economy.

Based on the experiences of the World Wars, there are indications that an island nation could suffer up to a 60% reduction of imports without complete collapse.[55] From the food standpoint, Japan currently produces about 1,530 calories per day, some 40 per cent of her normal consumption in terms of original calories.[56] She is, of course, much less self-sufficient in many other critical commodities.

The U.S. Air Force has some 77 C-5A and 276 C-141 transport aircraft available. Using loading rates similar to those achieved

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[55]Interviews with Japanese Maritime Self Defense Force (hereafter MSDF) Officer, April 20, 1974. It is based on the fact that 1942 British imports reached a minimum of about 43% of 1939-40 demand. Japan's war production, on the other hand, deteriorated rapidly after 1944, when U.S. submarines reduced her raw materials imports to 35% of pre-war amounts. British data from C. B. A. Behrens, Merchant Shipping and the Demands of War, U.K. Civil Series (London: Her Majesty's Stationery Office, 1955), pp. 65-200. Japanese figures from United States Strategic Bombing Survey (USSBS), "The Effects of Strategic Bombing on Japan's War Economy," USSBS, Vol. 53 (Washington: Government Printing Office, 1947). Similarly, the British blockade of Germany in World War I cut the average citizen's calorie intake to 1,431, about 44.5 per cent of the peacetime figure. See C. Ernest Fayle, Seaborne Trade, Vol. II: The Submarine Campaign to the End of 1916 (London: John Manning, 1923), p. 404.

[56]Asahi Shimbun series, "Food and People," installment VI, July 14, 1973. See below, Chapter Five.

during the 1973 Mideast War[57] to carry raw materials from the West Coast to Japan, the entire U.S. Air Force heavy lift capacity could supply less than six percent of an austere (40% of peacetime) Japanese iron ore need alone. This in no way diminishes the value of these aircraft, but highlights the competitive advantage of ships in the transport of the bulk cargoes so necessary to everyday life.

Contrary to popular opinion, it is not only the West that is dependent on this trade. Much has been written about the Soviet Union's internal lines of east-west communications, the Trans-Siberian Railway, the canal system, etc. However, a large percentage of the goods arriving in eastern Siberia comes by ship either through the Indian Ocean or by the Arctic route.[58]

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	C-141	C-5A
Cargo Loadings (Yom Kippur airlift)	15 tons	75 tons
Speed	465 kts.	465 kts.
Distance	4650 n.m.	4650 n.m.
Flying Time (Round Trip)	20 hrs.	20 hrs.
Sorties per aircraft/day (est)	.75	.75
Available aircraft	276	77
Total Cargo/day	3105 T	4556 T

Japanese Iron Ore Imports 118,785,000 tons/yr = 325,438 tons/day
40% of peacetime imports FY 1972 = 130,175 tons/day

Source: Aircraft data from Jane's All The World's Aircraft, 1973-74.

Imports from Ministry of International Trade and Industry (MITI). Comparable figures for other commodities (at the 40% level) are: Petroleum - 3%, Coal - 14%, Foodstuffs - 58%. Note that cargo loads could be increased to 35 tons and 110 tons respectively over shorter distances or at full range with the mid-air refueling now being developed for the C-5.

[58]Robert E. Athay, "The Sea and Soviet Domestic

Thus, it would seem that maritime transportation will continue to be the mainstay of peaceful international commerce. Over a wide variety of wartime scenarios sealift capability will be important, both for long-term conflict resupply and to deter by displaying the capacity to cope with blockades of long duration. In many cases, however, an airlift,may be necessary to buy enough time for the seaborne supply operations to become effective.

Other Strategic Innovations

Weapon systems with strategic implications in modern naval warfare range from the attack carrier to ballistic missile submarines to land-based bombers and missiles which could be targeted against convoys, task forces, etc. Although volumes could be written on each, these devices generally are outside of Japan's purview at present. They will be referred to later in more specific contexts.

Transportation," USNIP, XCVIII (May 1972), pp. 158-179, does not give exact figures, but states:

> . . . large areas of the Soviet Union, chiefly on the Pacific and in the Arctic . . . rely on shipping for their main transport links with the rest of the country and with the outside world. (p. 177)

See also U.S., Congress, House of Representatives, Committee on Foreign Affairs, The Indian Ocean: Political and Strategic Future, 92nd Cong., 1st session (Washington: U.S. Government Printing Office, 1971), p. 3.

Environment-Level Developments

Rarely does technology actually alter the arena of conflict itself. The aircraft and the submarine did, of course, by introducing new dimensions to the battlefield. Other developments were noted at the beginning of the chapter. At present, however, there are two interrelated programs underway which may one day have similarly far-reaching effects.

Real-Time Ocean Surveillance Systems

One of the prerequisites to the SALT agreements was the development of "national technical means of verification," primarily reconnaissance satellites.[59] Having proved their worth in strategic intelligence, attention has begun to turn to their tactical potential. This has profound implications. Should it become possible to monitor the movements of naval vessels on a real-time (as occurring) basis, it would change the entire environment of warfare at sea.

A 1972 study indicated that satellite cameras could resolve objects of about one foot from an altitude of 100 miles. Infrared sensors and side-looking airborne radar (SLAR) also were felt to be aboard some of the latest vehicles.[60] Shipborne radar

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[59]SALT I Agreement, Article XII, para. 1. The complete range of national intelligence assets naturally would be devoted to such work, but satellites are among the most important in this case.

[60]Ted Greenwood, Reconnaissance, Surveillance and Arms Control, Adelphi Papers No. 88 (London: International Institute

signals can be monitored by electronic intelligence satellites which have been orbited since the early 1960s.[61]

There is thus no doubt that the capability exists for satellites to detect ships at sea under clear skies, both day and night. All-weather capability will depend on the sophistication of the satellite radars, but this seems to be developing rapidly.[62] The important words thus are "real-time." There also is a significant problem with identification.

Treating the former question first, there are two ways to obtain data from satellite sensors. The first is to store them in a recoverable capsule, which is ejected at intervals (typically three days or longer[63]) for processing. This method is ideal for high-resolution photography, locating and analyzing

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for Strategic Studies (IISS), 1972), pp. 6-8. SLAR gives a photograph-like image even through cloud cover. Given the state of current technology, the primary limitations on visual sensors seem to be from atmospheric distortions. These are on the order of 6" to one foot. Greenwood feels that existing lenses and films could come close to these limits. Even if television were less clear by an order of magnitude or two, it still would be adequate for detecting ships. See also Greenwood's article "Reconnaissance and Arms Control," Scientific American, 228 (February 1973), pp. 14-25.

[61] Stockholm International Peace Research Institute (SIPRI), "Verification Using Reconnaissance Satellites," SIPRI Yearbook 1973 (Stockholm: SIPRI, 1973), pp. 60-101.

[62] U.S. News and World Report, October 21, 1974, p. 14, reported that Britain "has perfected a satellite radar system able to pinpoint every ship in the Eastern Atlantic."

[63] Greenwood, Scientific American Article, op. cit., pp. 18-20.

fixed electronic emitters, etc. The second approach is to transmit the data to the ground via radio link, often after processing aboard the satellite. Such systems almost never would be out of contact with U.S. listening stations for more than 30 minutes.[64]

The limitations of the first approach for ocean surveillance are evident. In 72 hours a 20 knot task force could be anywhere in a 22,342,000 square kilometer area. In other words, if it were detected at Guam, three days later it could be off Tōkyō, the Philippines, New Guinea or Wake.

Even with a continuous data link, there are problems. A satellite with an orbital period of exactly 90 minutes will retrace its path over the earth's surface once every 24 hours.[65] A satellite in a 200 km orbit could cover a circle roughly

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[64] Aviation Week, August 19, 1974, reported that the Earth Resources Technology Satellite (ERTS) would store data on its tape recorder when out of touch with U.S. ground stations and transmit it when communication was re-established about 30 minutes later. The U.S. Air Force reportedly maintains a satellite monitoring station at Alice Springs, Australia which might reduce the time even more.

[65] Such a satellite would complete 16 orbits in 24 hours, bringing it back over its starting point just as the earth began another revolution, thus repeating the cycle. If the period were not exactly 90 minutes, the satellite would trace a different path each day. The limits of latitude covered by a satellite are defined by the inclination of its orbit to the Equator, i.e. an inclination of 90 degrees would reach both poles, while one of 75 degrees or 105 degrees would go only to latitude 75 degrees North and South.

3120 km in diameter,[66] although presumably its high-resolution sensors have a much narrower field of view. In any case, to provide coverage of a given point once every 90 minutes, 13 satellites at 200 km would be needed.[67] Given that such an orbit would decay fairly rapidly (in about a month), perhaps as many as twelve launches per year would be needed to keep <u>each</u> satellite on station. At about $25 million per launch,[68] such a program quickly becomes prohibitively expensive.

Obviously, there are trade-offs. Four satellites in 1000 km orbit could cover the equator once every 100 minutes or so and remain in orbit longer, albeit at a five-fold sacrifice in resolution. A synchronous satellite[69] at 36,000 km could provide

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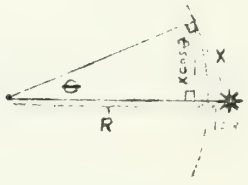
[66] Calculations as follows:

1. Earth's radius (R) = 3448 n.m., radius to satellite = (R+108) = 3556 n.m.
2. Cos θ = .9696, Sin $\theta = \sqrt{1-\text{Cos}^2\,\theta}$ = .2446
3. X = (R+108) Sin θ = 869.8,
   Y = X Cos θ = 843.2 n.m. = 1562 km



[67] The equational circumference of the Earth is about 40,066 km. If the diameter of each satellite's "view" is 3104 km, then 12.9 would be needed to cover the equator at any one moment. Fewer would be required for higher latitude coverage (i.e. 11 could cover all areas above 30 degrees).

[68] Estimate from Mr. Philip J. Klass, <u>Aviation Week</u>, telephone interview, October 8, 1974.

[69] A synchronous orbit is one in which the period of the satellite is 24 hours, thus making it appear to remain stationery over some point on the equator. The orbital plane can be inclined slightly to cause it to trace out a North-South figure-eight, but such satellites are basically confined to low latitudes.

continuous coverage of an entire hemisphere but with poor resolution and serious angular viewing problems near the poles. The former altitude, incidently, is close to that which the Soviets reportedly have used for their recent ocean reconnaissance vehicles.[70] Given that both the U.S. and the Soviet Union usually have maintained only one photo satellite in orbit at any one time since the late 1960s,[71] it is evident that ocean surveillance from space will require an extensive, and expensive additional effort. Nevertheless, both superpowers seem committed to the project.[72]

There is, however, another problem which may be even more serious than the detection of ships at sea--their identification. In 1971, some 22,900 merchant ships and fishing craft were at

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[70] Aviation Week September 9, 1974, p. 26. The U.S. Navy's Project 749, however, reportedly is looking at a "low-altitude satellite," Aviation Week, August 9, 1972, p. 12.

[71] SIPRI Yearbook, op. cit., figures derived from Tables of military launches. Both countries, however, have a larger number of electronic intelligence (ELINT)--so called "ferret"--satellites in orbit. At the end of 1972, the U.S. had 17 still flying to the Soviet's 15, though it is not clear how many still are working.

[72] U.S. Navy officials revealed in 1973 that the Soviets were using satellites for ocean surface surveillance, stating that the U.S. was five years behind in the field (Aviation Week, September 10, 1973). Between December 1973 and May 1974 the Soviets launched 3 satellites with near-circular orbits which were compatible with this role. (Aviation Week, September 9, 1974). The USAF recently has alunched a number of vehicles using the TITAN III-B booster which may be dedicated to Navy Projects.

sea on any given day.[73] The figure is projected to grow to 30,437 by 1980.[74] By contrast, the U.S. Navy in 1974 had some 268 ocean-going surface combatants and amphibious ships while the USSR had 270.[75] Even assuming that 50% of the forces would be at sea at any one time,[76] they would constitute only slightly more than one percent of the ships on the ocean, and only about two and a half percent if fishing boats are excluded.

Thus there is a problem of identification. Warships undeniably have electromagnetic signatures which are different

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[73]Robert P. Thompson, "Establishing Global Traffic Flows," Journal of Navigation, XXV (October, 1972), pp. 483-495. The 1971 figure was arrived at by applying the at-sea percentages of Table I to the vessel categories in Table IV.

[74]Ibid. The forecast is flawed by assumption of (1) continued expansion of per capita oil consumption in the industrialized countries at 1960s rates and (2) continued closure of the Suez Canal, but it is useful nonetheless.

[75]Jane's Fighting Ships 1974-75, pp. 642-643. This includes: Carriers, cruisers, destroyers, frigates, corvettes, assault ships and landing ships. The point is not to compare the sizes of the two navies but to point out the relatively small number of major warships as a percent of total ships at sea.

[76]Probably a high estimate, except in the most serious crises. About a third of the U.S. fleet normally is deployed overseas in peacetime, with the figure rising to 50-to-60 per cent in periods of tension, and 90 per cent in a general war. (Washington Post, October 29, 1974). The commander of the U.S. Atlantic fleet stated in 1974 that the U.S. peacetime target was 42 days at sea per quarter (46%), but that the tempo of operations had fallen to about 38 days (42%) for deployed units and 34 days (37%) for others because of fuel and budget constraints. See U.S., House of Representatives, Committee on Armed Services, Hearings on Military Posture and H.R. 12564, Department of Defense Authorization for Appropriations for Fiscal Year 1975, Part 2 of 4, 93rd Cong., 2nd session (Washington: U.S. Government Printing Office, 1974), p. 940.

from those of merchantmen. Naval radars can be distinguished from commercial ones, and the volume of communications from all but the smallest man-of-war is likely to dwarf that from the average merchant ship. But the time during which a suspected reconnaissance satellite will be overhead can be predicted, and various forms of deception exercised by naval and selected merchant units during that period. It also is probable that warship infrared signatures are different from those of commercial vessels, especially for larger units. With sensor resolutions of ten feet, a satellite should be able to distinguish a ship with two active firerooms (i.e. a warship or fast liner) from one with only one. These would be more difficult to mask, but presumably some ambiguities could be introduced if desired. The difficulties are compounded if it is desired to know which warships are present and where they are going (other than just to distinguish between warships and merchant ships). A small vessel can simulate a larger one fairly easily through a number of devices. Among these would be:[77] increased communications traffic, the use of special transmitters to simulate radars not actually carried, and special repeaters to enhance the energy of reflected signals from enemy radars to make a target look bigger than it is. If a ship actually is being

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[77] Jane's Weapon Systems 1973-74, pp. 241-251, contains an excellent description of basic Electronic Warfare (EW) procedures and equipments, from which the examples herein are taken.

tracked by certain types of radar, techniques to give false direction and position information can be employed. In sum, the problems of real-time ocean surveillance are formidable, even with satellites. It is unlikely that a U.S. commander soon will be able to ask about the Kresta class cruiser Krasnyi Krim and be presented with immediate television coverage. On the other hand, it is not unreasonable to expect information to the effect that a Soviet destroyer-type ship was reported at Lat. X, Long. Y within the past 24 hours. Anything in between will depend on the amount of assets that one is willing to commit.

The most practical approach is likely to be through the coordination of several sensors. In addition to the seabed hydrophone arrays mentioned earlier (p. 36),[78] Over-The-Horizon (OTH) radar systems can track ships from about 1500 to 2950 kilometers.[79] Land-based patrol aircraft have long been an essential part of maritime reconnaissance, and these may be

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[78]A knowledgeable trade journal has reported that: "One early experimental installation (of seabed listening systems), emplaced in 1956, was aimed at spotting surface and submarine traffic leaving and approaching Vladivostok and Nachodka [sic] through the Sea of Japan." Compass Publications, Sea Technology Handbook Directory 1974 (Arlington: Compass Publications, 1974), p. A/12.

[79]Donald E. Barrick, "The Use of Skywave Radar for Remote Sensing of Sea States," Marine Technology Society Journal, VII (January-February 1973), pp. 29-33. In addition to the back-scatter radar at the Naval Research Laboratory on Chesapeake Bay used for the studies reported in the article, the U.S. has deployed OTH-B radars as part of its ballistic missile early warning system (BMEWS). Whether or not these radars can (or will) be converted for sea surveillance is not known.

supplemented by modified U-2s operating from carriers.[80] High Frequency Direction-Finder networks have been used with great success since World War II. Perhaps the most cost-effective combination would be a satellite to provide 24 hour position checks with updates provided by aircraft or "tattletail" ships[81] as deemed necessary by on-scene commanders. Alternatively, integrated sensor systems could be developed in high-interest regions (such as the exits from the Baltic, the Norwegian Sea or the Sea of Japan, or the approaches to the Persian Gulf. Perhaps as in NTDS,[82] targets could be assigned track numbers, identified by electronic or other means, and then watched until they passed out of the surveillance area or were turned over to elements dedicated solely to their monitoring. In the near future, the Soviets are likely to have an edge in this regard since they are mainly interested in the relatively few U.S. aircraft carriers, which can be trailed if necessary. On the other hand, the U.S. has the computer technology to eventually develop a better ocean-wide surveillance system through remote sensors.

Paradoxically, it may be easier to hide valuable ships in

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[80] Aviation Week, May 8, 1972, p. 26.

[81] A "tattletail" is a surface ship assigned to follow an opponent's fleet and report its movements, state of readiness, launches of missiles, etc.

[82] See above, note 35. Aviation Week, August 9, 1972, reported "A . . . series of three small software studies dealing with track correlation for the ocean surveillance satellite . . ." (emphasis supplied).

peacetime than in wartime since there are merchantmen to get lost among along the normal sealanes. At the same time, the general location of convoys in wartime might not be too difficult if all ships were moving in discrete clusters. This, incidently, is not an adequate argument for abolishing a convoy. Its purpose is not to hide, but to provide for easier defense. This it surely does in all but a nuclear environment, since the initial detection problem of the submarine is partly solved if it is known that he must come to the vicinity of the convoy.

What then, are the implications for naval operations of a partial ocean surveillance system? In a general war environment, it is uncertain. If there is no "tattletail" in physical contact, there probably still are enough deception measures available to confuse the surveillance systems long enough to launch a carrier strike, especially if there is some bad weather around to hide under.

In any case, the information likely to be available from any sort of ocean surveillance system over the next few years probably won't be able to ensure a first strike capability against ships at sea. In the longer term, however, it could seriously erode the effectiveness of surface warships by providing targeting information for submarines, ballistic anti-ship missiles (which, by then, could be fitted with homing warheads),[83] or even IRBMs.

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[83]This discussion has avoided the detection of submerged

In a limited war, surveillance might be decisive, but the evidence is not conclusive. Even if ASM-carrying aircraft could find a task force, the outcome of an engagement between them and an alerted group of fighters carrying the 60-mile-plus Phoenix missile certainly is not a foregone conclusion, especially if the ships also have point-defense systems.

If the ships themselves are not targets, the surveillance does not seem likely to make too much difference. A Soviet intelligence trawler monitored U.S. operations in the Gulf of Tonkin throughout the Vietnam war and doubtless passed strike information along to the North Vietnamese if, indeed, they could not have detected it themselves.

In many peacetime operations it is helpful to have your opponent know what you are doing as soon as possible. One commentator has noted that, in the 1958 Quemoy crisis and the 1967 war:

> Warship activity appeared to be an excellent indicator of Washington's intentions. The 1967 fleet maneuvers, in keeping with U.S. policy, were deliberately restrained and aggressive only at the time of presumed Soviet threat. Highly publicized augmentations in 1958 demonstrated U.S. determination. In both cases, Soviet emphasis on naval

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submarines by satellites. Although the Skylab astronauts followed schools of fish in the Gulf of Mexico, some progress has been made in the use of blue-green airborne lasers for shallow water sea bed mapping, and other work has been reported in satellite-based lasers, it does not appear that any radical ASW breakthroughs will be forthcoming in the next few years. See Tsipis, et al., The Future of the Sea-Based Deterrent, op. cit. (note 45), pp. 121-130.

> activity as a true reflection of American intentions increased the significance of warship movements.[84]

Thus, the two principal circumstances in which ocean surveillance could undercut the political effectiveness of naval forces are (1) when it is desired to make your opponent think that you have much larger forces "just over the horizon" and (2) when it is desired to transit a strait, or arrive on the scene before he has a chance to prepare or protest. The classic example of the first occurred during Graf Spee's brief stay in Montevideo after the 1939 action off the River Plate. Although the nearest heavy reinforcements were several hundred miles away, the British managed to convince her captain that the cruisers which had brought her to bay had been reinforced by capital ships.[85] This knowledge doubtless was instrumental in the decision to scuttle the German raider.

An illustration of the second might have been during the December 1970 Indo-Pakistani war, when the carrier Enterprise and her escorts entered the Indian Ocean via the Malacca Straits. For most, the first word of this movement was the passage of the task force through the straits,[86] thus giving the riparian

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[84]Howe, op. cit. (note I-5), p. 331.

[85]Dudley Pope, The Battle of the River Plate (London: William Kimber, 1956).

[86]U.S. sources officially have maintained that no prior notification was given for this transit and this was substantiated by interviews in Malaysia and Singapore during June 1974.

government no chance to decide on a course of action or lodge a complaint in advance. Similarly, in 1958, shortly after Sukarno proclaimed Indonesia's archipelago doctrine, U.S. destroyer division 31 transited Lombok and Makassar straits to register displeasure with the unilateral enclosure of heretofore open waters.[87] One can imagine a similar scenario in which the Soviet Union, or U.S., might make the movements of its adversaries known to a coastal state in order to allow it time to prepare an embarrassing protest or even ready some of the weapons noted earlier.

This once again emphasizes the value of organization. While weapons technology may temporarily shift the advantage in favor of attacker or defender, organization, particularly in intelligence, is likely to be a permanent feature distinguishing major maritime powers from small or middle power navies.

Command Control Communications (C^3)

Communications is the key to the effective utilization of this intelligence. The revolution which has taken place in this field with the advent of solid state electronics, computers and satellites is breathtaking. At the shipboard level are tactical data systems. More sophisticated equipment is required to manage the world-wide scope of current U.S. (and Soviet) operations. Finally, it is necessary to ensure that the

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[87] Cable, op. cit. (note I-5), p. 216.

strategic nuclear forces can still receive their launch orders, even if they have absorbed a first strike.

Errors will happen, to be sure. The communications failures which preceded the Liberty and Pueblo incidents are good examples. The trend, however, has been to concentrate more and more control with centralized decision-makers. On occasion, for instance, President Johnson was reported to have personally chosen the targets for strikes from the Yankee Station carriers.

It is for this reason, as well as their close relationship to surveillance systems, that developments in C^3 have been classed as an environmental change. Besides the flexibility that centralization has brought, it also has greatly increased a nation's vulnerability to attacks on its communications network. By deception, cryptanalysis, electro-magnetic pulses, jamming, or a host of other exotic measures, conflicts may be effectively decided in the ether while the opponents' major forces remain intact.

Chapter Two

THE CHANGING USES OF THE OCEANS

Traditionally, there have been three occupations for those who made their living at sea--as naval hands, merchant sailors, or fishermen. Since the end of World War II, however, indeed, in the past 15 years, an entirely new range of uses has emerged for what has come to be called ocean space. Seabed resources, ranging from alluvial tin deposits to continental shelf petroleum to abyssal manganese nodules may bring more than 100 billion dollars per year by 1985. Man-in-the-sea programs, although they have not lived up to their original promise, may yet make significant contributions to continental shelf resource development. The press of population growth, industrial land use and on-shore pollution have increased the incentives to move urban and industrial activities afloat. A large percentage of future nuclear reactors may be located at sea. In various parts of the world, fertilizer plants, waste disposal facilities, airports and oil storage tanks already are being constructed offshore. A growing recognition of oceanic pollution has emphasized the need for multi-national approaches to problems.

In the meantime, of course, the historic uses of the sea also have been radically altered. Naval operations have been

dealt with in the last chapter and will be covered again in Chapter Four. Fish are being tracked by satellite, cultivated in both fresh and salt water, and dangerously over-caught in some areas. Merchant shipping is being transfigured by technology.

The unsettled marine political climate, which will be discussed in the next Chapter, is intimately related to the changing economic uses of the seas. As a preface, therefore, some recent trends in ocean commercial activities will be reviewed, along with some likely future developments.

Merchant Shipping

As noted in the previous chapter, maritime commerce dominates international transportation and is not likely to be dislodged in the near future. The economics are quite straightforward: For one dollar, a ton of U.S. freight can be moved 330 miles by water, 70 miles by rail, 14 miles by truck, and one mile by air.[1]

At the end of 1973, the world's merchant fleet totaled over 59,600 ships of 289,927,000 gross tons,[2] broken down as follows:

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[1] Fairplay (British Shipping Journal), December 30, 1971, cited in George H. Miller, "Necessary for the National Defense," Shipmate (May 1974), p. 16.

[2] Sea Technology Handbook Directory 1974, op. cit. (note 1-78), pp. A/4-5.

Table 2-1

COMPOSITION OF THE WORLD MERCHANT FLEET

Type	GRT(1,000)	Number	Percent of Tonnage
Oil Tankers	115,360	6,607	39.8
Bulk/Oil Carriers	19,539	349	6.7
Ore and Bulk Carriers	53,110	2,954	18.3
General Cargo Ships	70,079	21,629	24.2
LNG Carriers & Others[a]	3,967	838	1.4
Container Ships	5,900	344	2.0
Non-Trading Vessels[b]	21,972	26,835	7.6

Source: Sea Technology Handbook Directory, 1974, p. A/5

Note: [a]Includes chemical tankers, RO/ROs, large carriers, and ocean tug barges.

[b]Tugs, dredges, cable ships, ice breaker, fishing vessels, etc.

In 1970, some 240 million gross tons of ships carried 2,510 million tons of seaborne trade (three quarters of it raw materials and grain) and generated revenues estimated at about $40 billion dollars.[3] Marine insurance premiums in 1972 totaled some 2.5 billion dollars.[4]

The individual and collective capacity[5] of merchant ships

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[3]Charles C. Bates and Paul Yost, "Where Trends the Flow of Merchant Ships," in John King Gamble, Jr. and Giulio Pontecorvo (eds.), Law of the Sea: The Emerging Regime of the Oceans (Cambridge: Ballinger Publishing Company, 1974), p. 249.

[4]George W. Handley, "The Role of the Marine Insurance Industry in the Emerging Regime of the Oceans," in ibid., p. 286.

[5]The size of ships is measured by several different standards. Merchant ships usually are registered by gross tons and have their carrying capacity expressed in deadweight

has grown dramatically, more than doubling since 1967. Some evidence of this may be seen in Table 2-2:

Table 2-2

A COMPARISON OF THE CARRYING CAPACITY OF THE WORLD FLEET BY BASIC SHIP TYPES 1967-1972

Type	1967 $_6$ DWT(10^6)	1972 $_6$ DWT(10^6)	Percent Change
Tankers	105.5	192.5	82.5
Bulk Carriers	49.6	108.5	118.8
Freighters	89.5	88.5	-1.1
Passenger and Cargo	5.1	4.0	-21.6
Barge Carriers	0	.5	-
Container Ships	.6	5.0	733.3
LNG Carriers	.07[a]	.54[a]	671.4

Source: Kasputys, pp. 140-142

Note: [a]Millions of Cubic Meters

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tons. Warships typically are listed by displacement. Definitions, and rough conversion factors, are given below.

GROSS TONS(GRT) - Total number of cubic feet of enclosed space divided by 100 (refers to space)

NET TONS(NRT) - That part of Gross Tonnage which may be utilized for passenger and cargo (refers to space)

DISPLACEMENT TONS-The total weight of the vessel and its contents expressed in tons of 2,240 pounds (long tons)

DEADWEIGHT TONS(DWT) - The difference between the displacement of the ship loaded and unloaded. It is an indication of the ship's carrying capacity (refers only to weight)

To Find	Multiply DWT. by	Multiply GRT. by	Multiply NRT. by
DEADWEIGHT TONS	1.00	1.50	2.50
GROSS TONS	0.67	1.00	1.67
NET TONS	0.40	0.60	1.00
DISPLACEMENT TONS	1.50	2.25	3.75

For large tankers and ore carriers, the ratio of DWT to GRT is considerably greater than 1.5:1.

Note the dominance of large tankers and bulk carriers, the rapid growth of specialized designs such as container ships and LNG tankers, and the stagnation of general cargo freighter development. Japan has played a major role in this transformation by pioneering the mass production of very large ships. So extensive has such construction become that fully 40 percent of existing world-wide tonnage is less than five years old. From inertia, if nothing else, this trend will continue, as fully 90 percent of the 114.3 million gross tons on orders in world shipyards in September 1973 were tankers and bulk carriers.[6]

Thus, the past twenty years have witnessed great changes in the nature of merchant ships themselves, and these have had a significant, though often unappreciated, impact on naval operations, domestic and international commerce, and even world politics.

The Growth of Tankers and Bulk Carriers

The economics and politics of ocean transport which have driven tankers from under 20,000 tons in 1945 to nearly half a million tons in 1973 have been eloquently recounted by Noël Mostert.[7] The inflation of bulk carrier size has been comparable.

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[6] Sea Technology Handbook Directory 1974, p. A/4. The total value of these orders was some $175 billion for 4,678 new ships. See also Joseph Kasputys, op. cit (note I-6).

[7] Noël Mostert, Supership (New York: Alfred A. Knopf, 1974). These ships frequently are referred to as VLCCs (Very Large Crude Carriers--generally greater than 100,000 tons) and ULCCs (Ultra Large Crude Carriers--usually above 300,000 tons).

Although projected 1,000,000 ton ships seem to have been deferred, and renewed interest shown in 25-80,000 ton craft, the super tankers will continue to be a dominant feature of ocean commerce.

The political problems associated with ships of this size mostly have been related to pollution and will be discussed in the next chapter. At the same time, however, the massive vessels have raised a host of technical issues. Marine insurance values have risen from $2,500,000 for a World War II ship to $25,000,000 for the Igara, which was lost off Singapore in 1973,[8] to $80,000,000 for the 477,000 DWT Globtik Tokyo. Liquified natural gas (LNG) tankers now under construction may push this to $125,000,000 per ship.[9] As one expert has noted:

> Right now, because of capacity limitations, it is not possible to insure a $125,000,000 vessel completely in one insurance market, be it London, Lloyd's, the United States or Japan. . . . we are approaching the maximum of the world insurance resources presently available.[10]

Suggested solutions from an underwriter's standpoint have included mandatory traffic separation schemes in congested waterways, better training and licensing procedures for crews, as well

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[8] Marine Technology Society Journal, VIII (February 1974), p. 15. This was the largest single marine insurance loss in history.

[9] Handley, "The Role of the Marine Insurance Industry . . .," op. cit. (note 2-4), passim.

[10] Ibid., p. 287.

as diversification of risks by sharing an expensive ship among insurance markets in several countries.[11]

The ships also pose special safety problems. 200,000 DWT vessels draw more than 21 meters, which already limits their operations in some parts of the North Sea, U.S. coastal waters, the Straits of Malacca and the Indonesian Archipelago. Moreover, the tankers are singularly unmaneuverable--requiring as many as 20 minutes and several miles to stop. This has strengthened calls from operators and coastal states alike for navigational controls ranging from total bans in some waterways[12] to traffic lanes in others. Mostert has recognized the heart of the issue:[13]

> For those on shore, shipwreck was once not an unwelcome event; it drew the plunderers from far and near. It was talked about for generations, with wistful recollection of the drama and the spoils; but shipwreck, once feared principally by those on board, has become in our own time the more solemn dread of those on shore than those on board. For the first time we on land have more to lose and nothing to gain. Helicopters get the sailors off, we clean up the muck. That is why the responsibility for ships has become ours, and is no longer the sailors'
> . . .

Another consequence of the deep drafts has been the development of offshore morring facilities (deep water ports or superports). In addition to environmental and navigational

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[11] Ibid., p. 291.

[12] Ships greater than 200,000 DWT are not permitted in the Straits of Malacca.

[13] Supership, op. cit., pp. 331-332.

considerations, the legal status of these structures is uncertain. There is a growing body of pertinent literature,[14] but the major point of interest to this study is the extent of additional jurisdiction which coastal states can derive from off-shore structures.

Containerization

A freight container is nothing more than a large box of standard dimensions to simplify cargo handling. Nonetheless, since the late 1950s, the container revolution literally has transformed international commerce.[15]

This method of packing has reduced pilferage at trans-shipment points, minimized customs delays (since only the manifest of the sealed container need be inspected), and contributed to world-wide standardization. Even more importantly, it has led to inter-modal transportation systems, with door-to-door

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[14]See, inter alia, Allan Hirsch, "Special Circumstances: Superports," and Albert W. Koers, "Artificial Islands in the North Sea," with commentary in Gamble and Pontecorvo, op. cit., pp. 217-245. Can, for instance, man-made structures be used as the basis for claims to the surrounding water area or continental shelf? Can they be used to draw baselines?

[15]The advantages of containerization for the shipping industry have been given by K. M. Johnson and H. C. Garnett, The Economics of Containerization (Glascow: Social and Economic Survey, No. 20), 1971. Some of the problems of integrating containerships and ports into rail and road networks are outlined in European Conference of Ministers of Transport, A Study of the Economic Influence of Containerization (Paris: OECD, 1974).

freight rates,[16] land bridges[17] and multinational outlooks. Special ships have been constructed for their conveyance which are considered 6.5 times as productive as a "conventional" cargo ship.[18]

One drawback of containerization is its lack of flexibility. It is ideally suited for the movement of large quantities of relatively high-value goods between modern terminals in industrialized countries. It is not, however, appropriate for bulk cargoes. Also, the capital requirements for supporting infrastructure (container ports, rail and road nets, handling equipment, etc.) are so high that it often is beyond the reach of developing countries. Moreover, containerships are not nearly so useful to the military planner as the versatile general cargo ship which can load and unload a wide variety of goods even at

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[16]Denver to Paris, for instance. In the past, separate rates would have been cited for factory to rail-head (truck), rail-head to port (train), port-to-port (ship), port to depot (train or truck), etc. Now a single fee can be quoted from shipper to destination, independent of the transportation mode.

[17]See George D. Saunders, "Land Bridge Comes of Age," USNIP, XCIX (December 1973), pp. 38-44. The two most important are the North American Land Bridge, which links major Pacific ports with those on the Atlantic and Gulf coasts via U.S. and Canadian railroads, and the Siberian Land Bridge from Japan to Western Europe. Both began to be developed around 1967 and had matured by 1972. The North American bridge, incidently, also has partly undercut the strategic value of the Panama Canal, at least for the United States.

[18]Kasputys, op. cit. (note I-61), p. 144. A conventional ship is defined as a U.S. C-2 type freighter or T-2 type tanker.

unfinished or damaged bases.[19]

Barges, Barge Carriers and RO/ROs

As noted above, there are many ports (probably the majority) which cannot support large-scale container operations. At the same time, virtually any coastal pier or river wharf can service barges, which still carry tremendous volumes of cargo world-wide.[20] Since the late 1960s, two novel approaches have been developed to combine the potential of barges with modern ocean shipping. The first is the barge carrier, or LASH, standing for Lighter Aboard Ship. Thus far they have been used mostly between the U.S. Gulf Coast and Europe, but they also

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[19]Nonetheless, containerization does present certain military advantages, which the armed forces are beginning to exploit. See the essay, "War Logistics and the Freight Container," Jane's Freight Containers 1973-74 (London: Sampson Low, Marston, 1973), pp. 622-629.

[20]In 1972, domestic water traffic handled 29.6% of U.S. intercity trade (in terms of ton-miles). The cargo carried by these vessels was 156% of that taken by vessels of all flags in U.S. foreign trade, and constituted 97% of all cargo moving under the U.S. flag. The DWT capacity of U.S. barges was more than double the total of all self-propelled U.S. ships on domestic, foreign and Great Lakes runs. See Wallace T. Sansone, "Domestic Shipping and American Maritime Policy," USNIP, C (May 1974), pp. 162-177. Rear Admiral Hayes points out that the expansion of American barge use has been ". . . so marked that it may change the economic focus of the United States from the Northeast to the Mississippi Valley and Gulf Coast." John D. Hayes, "The Sea, 1967-1972," USNIP, XCIX (May 1973), p. 297. European river traffic also is tremendously important to the EEC, as the Soviet Union's canal system is to her economy. Throughout much of the developing world, rivers remain the primary means of internal transportation.

have potential for the developing country trade. A larger design, on the same principle, is the Seabee. Each of these $125 million vessels carries containers, break bulk cargo and 38 large barges of the size used on European waterways. Rated at four to five-and-a-half times as productive as the C-2, a three-fold expansion of barge carriers under the U.S. flag is forecast by 1985.[21] Foreign operators are expected to follow suit.

The second innovation is the ocean tug-barge, in which a pusher tug is mated with an ocean-going barge. Upon arrival at its destination, the tug need not wait for the barge to be unloaded, but can pick up a return cargo almost immediately. This simply is an oceanic application of the principle that the freight vehicle should be separated from its propulsion system--a long standing practice ashore.

Another interesting, but not-so-new, design which is gaining popularity is the Roll-on/Roll-off (RO/RO) ship. This concept enables wheeled vehicles to be driven directly on and off via self-contained ramps.

The barge-related and RO/RO ships have restored some of the flexibility lost by containerization and larger bulk carriers. This is particularly important to the military. Eventually, it may benefit the developing countries as well,

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[21]Kasputys, op. cit., pp. 144, 149-150.

although the high cost of such vessels probably will concentrate them in trade between a few well-developed river-mouths.

LNG Carriers and OBOs

Although they are related to the bulk carriers, two other recent concepts deserve mention. The first is the Liquified Natural Gas (LNG) carrier, which is now seen to be the most needed ship type in the next several years.[22] The problems of handling LNG at temperatures less than -255 degrees F are formidable, and the pollution and safety hazards are not yet fully understood.

The other is the Oil/Bulk/Ore carrier (OBO) which trades higher building costs for the option of carrying diverse cargoes.

Fisheries

Estimate of the world's maximum sustainable fisheries yield range from 100,000,000 metric tons to somewhat over twice that amount.[23] The 1970 catch was 69 million tons, nearly 70 percent

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[22]John D. Hayes, "The Sea, 1967-1972," op. cit., p. 301. The author goes on to note that over 90 of these ships will be needed in the next fifteen years--at a unit cost of $60-70 million (which certainly will inflate since some U.S. ships already are over $100 million). Moreover, construction of the associated shore facilities may require $25 billion in the same period. He also illustrates the dangers of maritime forecasting by citing a 1968 study of shipping over the next 75 years which completely overlooked LNG carriers.

[23]Asahi Shimbun, "Food and People," XVI (July 30, 1972).

of the low end of the safe range and three-and-a-half times 1950's 21 million ton harvest. By 1985, FAO estimates, the global take will be 100,000,000 tons--very close to the minimum estimated limit. Moreover, it will mostly be comprised of sardines, anchovies, and other seafood now used for animal feed meal and protein concentrates. This implies a shortage of the high and medium grade fish which heretofore have made up most of human consumption.

Even today, warning signs have begun to appear in the guise of 30 centimeter, two year old mackerel in the Northwest Pacific where 50 centimeter, seven year old ones used to be commonplace. Also of note are declining yields per boat in the Gulf of Thailand, and the temporary collapse of the Peruvian anchovy industry.[24]

The problems have stemmed from a combination of technological sophistication and unequal geographic and species exploitation. Japanese and Russian fleets sail with factory ships for on-scene processing. Their new-construction trawlers, equipped with advanced detection equipment, and backed by a strong government supported research effort, have been accused of overfishing certain regions.[25] In U.S. waters, for instance,

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[24]See Barbara A. Keith, Fisheries of Peru, 1972-73 (Washington: National Marine Fisheries Service, July 1974).

[25]Charges of overfishing by foreigners date back at least to the early 19th century in European waters. See Colombos, op. cit. (note 1-2), pp. 367-369, 374-376 and 385. Thus the Soviet

American fishermen have averaged 2 to 2.5 million tons per year since 1960, while foreign fleets have caught 3 to 3.5 million. Yet, because of the peculiarities of the human diet, some 14 to 15 million tons of non-commercial species go unused in the same area.[26]

Some efforts have been made to harvest new species of low-grade fish or plankton to supply human protein through fishmeal or other refined products rather than by direct consumption.[27] Aquaculture eventually may increase the supply, but now accounts for only about 7 percent of the total catch. Moreover, it so far has been profitable only for relatively expensive sea foods such as shrimp, eel and shellfish.[28]

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and Japanese fleets have created a problem of defree, rather than one of kind.

[26] Sea Technology Handbook Directory 1974, op. cit. (note I-78), p. A/16.

[27] For a detailed analysis and specific suggestions on the potential increase in yield through conventional and non-conventional species (i.e. shark, krill, porpoises), see James Joseph and Witold L. Klawe, "The Living Pelagic Resources of the Americas," Ocean Development and International Law (hereafter ODIL), II (Spring 1974), pp. 37-64.

[28] A "sea ranch" will be developed in Okinawa for the 1975 Ocean Expo. There has been talk of setting off parts of the Indonesian Archipelago for fish farms, though it would be difficult to maintain controlled conditions on such a scale. Some experts doubt if aquaculture ever will be able to provide large quantities of relatively low-cost food. Even if the economic problems could be overcome, they argue, the formidable hurdles of distribution, increasing pollution and traditional non-seafood diets will remain. While it recognizes the difficulties, FAO has given high priority to aquaculture, noting that "several million

Fishing disputes and attempts at resolution will be treated more fully in the next chapter. But whatever solutions are sought, the harvesting of living ocean resources will remain an important and controversial activity which will continue to focus attention on coastal state interests at the expense of distant-water ones.

Non-Living Marine Resources

These can be divided into four principle categories: Alluvial and continental margin minerals, offshore petroleum and natural gas, deep seabed deposits, and materials extracted from seawater.

Alluvial and Continental Shelf Minerals[29]

Nearly all of the minerals found on land also exist on the seabed, although higher recovery costs have not made them economically attractive. Sand and gravel are the most widely exploited, and sometimes contain placer deposits of minerals

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hectares" could be developed for cultivation. Particular hope is held for fresh and brackish water herbiverous species, such as carp and milkfish. The Organization also has pointed to the danger that excessive harvesting of krill may reduce the catch of animals higher in the food chain which feed on them. For overviews, see FAO, "The State of Food and Agriculture 1973" (C73/2, August 1973, pp. 29-38) and "World Situation and Outlook: Fisheries Problems" (C73/13, September 1973).

[29]See Manfred G. Krutein, "Ocean Mining," USNIP, XCV (May 1969), pp. 135-140.

such as magnetite.[30] Tin has been dredged for years off the mouths of rivers in Thailand and Malaysia, and diamonds are taken along the western coasts of South Africa and Namibia.[31] Other minerals being recovered from relatively shallow water around the world include phosphorite and potassium.[32] Offshore coal shafts have been sunk in some countries, usually from natural islands but occasionally from artificial ones. Figure 2-1 shows the distribution of these activities.

There were some 1,000 ocean-going dredges world-wide in 1973, with another 50 units under construction. Offshore minerals production certainly will increase and may become very important in some areas. On a global scale, however, it probably will have only a peripheral impact on marine affairs.

Offshore Hydrocarbons[33]

As one review noted: "The one 'gold-plated,' guaranteed

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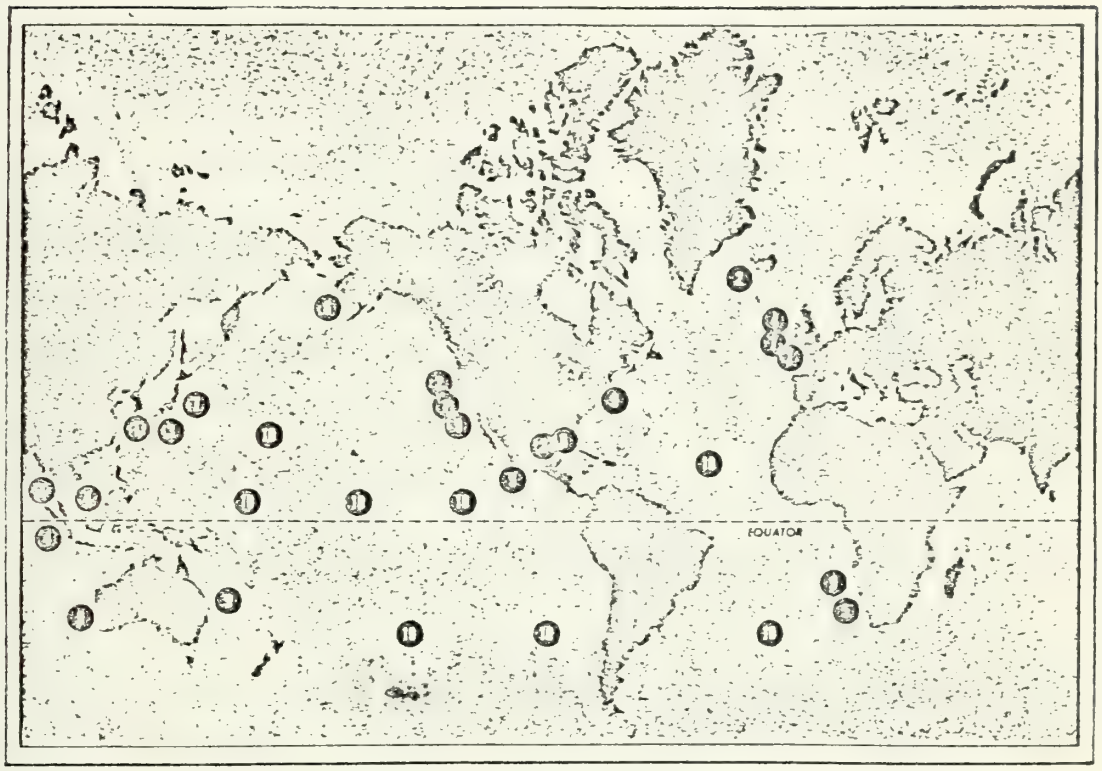
[30]Placer deposits contain mineral ores in sizes large enough to be separated by physical means, such as washing. Magnetite is a form of iron ore.

[31]See Evan Luard, "Who Gets What on the Seabed," Foreign Policy, 9 (Winter 1972-73), pp. 132-147. With the advent of high gold prices, some Alaskan alluvial deposits might again become profitable.

[32]Sea Technology Handbook Directory 1974, op. cit., p. A/3. For more details see U.S., Department of the Interior, Minerals Yearbook, 3 volumes (Washington: U.S. Government Printing Office, annual). Offshore (vice coastal) diamond mining off Namibia was suspended in 1971.

[33]Many of the forecasts and statistics in this section are taken from "Annual Drilling and Production Report," Offshore, June 20, 1974, passim.

Figure 2-1



1. Salt extraction from sea water
2. Oyster shells dredged from sea floor
3. Iron sands dredged from sea floor
4. Tin ores dredged from sea floor
5. Diamonds dredged from sea floor
6. Gold from sea floor
7. Coal underground below sea floor
8. Sulfur underground below sea floor
9. Phosphorite nodules
10. Manganese nodules

SEABED MINING ACTIVITIES

(from Krutein)

growth industry around the world is offshore petroleum and gas, . . ."[34]

Experience in offshore oil production grew from the gradual extension of onshore fields into the swamp lands of Louisiana and the shallow waters of the Caspian Sea. Only in 1947 was the first platform erected in 20 feet of water in the Gulf of Mexico.

By 1973, offshore output had grown to 10.4 million barrels per day, or some 18% of the world's pre-embargo output (22% of non-Communist production). Mid-1974 estimates indicate that as many as 25 million barrels per day (35%), may come from offshore fields by 1985.

In 1973, Venezuela was the largest producer of offshore oil, followed by Saudi Arabia, and the United States. Table 2-3 illustrates oil and natural gas production by leading countries.

Note, however, that this reflects discoveries made several years ago and does not include a number of recent developments, such as the British North Sea fields. These are expected to produce 3 to 4 million barrels per day by 1980.

As of mid-1974 the Persian Gulf and Lake Maracaibo held the lion's share of the proved offshore oil resources, with 53 and 21 percent respectively. The Persian Gulf and the North Sea held the major gas fields, with 50% and 13% each.

Aside from the U.S. and Venezuela, the most intensive

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[34]Sea Technology Handbook and Directory 1974, p. A/1.

Table 2-3

LEADING OFFSHORE PETROLEUM AND NATURAL GAS PRODUCERS

	Petroleum			Natural Gas	
Country	1973 Production (10^6 b/d)	1972-73 Percent Change	Country	1973 Production (10^6cu.ft/d)	1972-73 Percent Change
Venezuela	2.70	+1	U.S.	7,130.8	-21
S. Arabia	1.90	+33	Iran	3,360.0	-25
U.S.	1.70	0	U.K.	3,000.0	+17
Nigeria	.52	+26	Italy	762.0	?
Abu Dhabi	.45	+31	S. Arabia	721.7	+4
World	10.43	+15	World	16,938.1	-3
	The Fastest-Growing Producers were:				
Congo	.03	+340	Angola	558.1	+409
Brunei-Malaysia	.26	+210	Trinidad/Tobago	16.8	+57
Indonesia	.17	+149	U.K.	3,000.0	+17

Source: Offshore, June 20, 1974, pp. 86-87

drilling activities in 1973 were centered in Indonesia (143 wells), the United Kingdom (82), Mexico (49) and Brazil (48). The desired rate of both exploration and exploitation has been limited by shortages in drilling rigs and tubular products. While some of these constraints will be eased in the next few years,[35] it should not be expected that offshore discoveries alone will rapidly shift

[35]The Japanese Ministry of Transportation estimates that 620 drilling ships or platforms will be required by 1985 (vs. about 250 in operation in 1974). Zosen, September 1974, p. 48. Some 117 are planned for 1974-76. Nihon Keizai: Shimbun International Weekly (hereafter NKIW), March 26, 1974, p. 6.

the center of gravity of international oil away from the Persian Gulf. Proven and probable offshore petroleum reserves total 137 billion barrels, compared with 453 billion ashore. It is estimated that these figures could be increased to 571 and 1038 billion, respectively.

The Middle East continues to be the most promising location for future discoveries, followed by the North Sea. Other areas with good potential include the USSR, Southeast Asia, West Africa and the Atlantic, Pacific and Arctic shelves of North America. Exploration of the Northeast Asia Seabed has been restrained by the complex political situation there, while U.S. leases have been slowed by environmental concerns.

These new projects doubtless will produce finds which will be great boons to certain countries, as recent ones have been (or soon will be) to Norway, Great Britain, and Nigeria. However, it takes two and a half to ten years to convert discovery wells into commercial production, so a dramatic short-run transformation of the world energy picture through offshore efforts is improbable.

Perhaps the most immediate physical problem of seabed drilling is the hazard it poses to navigation. It is difficult to learn how many wells actually are in place, but the figure is considerable.[36] Most such platforms have safety zones of

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[36]Over 2500 "oil well structures" are reported in the Gulf of Mexico by itself. John D. Hayes, "The Maritime World in 1973," USNIP, C (May 1974), p. 252.

500 meters[37] around them, thus effectively restricting navigation in the vicinity. Nevertheless, some 50 collisions in a three-year period have been reported between merchant ships and offshore platforms in the Gulf of Mexico alone.[38] Therefore, more stringent measures probably will be necessary, especially in busy areas like the North Sea.

Whether or not a coastal state intends it, the development of offshore resources cannot help but bring expanded national jurisdiction. The rumor of a terrorist plot to blow up Britain's North Sea oil rigs in 1974 made headlines as far away as New Zealand.[39] In any case, it followed by only a few months the revelation that Whitehall was "considering security problems presented by North Sea oil and gas field development."[40] Since some of the fields lie over 120 miles offshore some extension of sovereign rights (if only those of self-defense) at least is implied.

The deepest well now spudded (mid-1974), is 656 meters off Gabon, and drilling vessels capable of working in 900 meters are in operation. Production operations currently are no deeper than 112 meters, but North Sea development will extend this

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[37]Permitted under Article 5 of the 1958 Geneva Convention on the Continental Shelf.

[38]Hayes, "The Maritime World in 1973," op. cit., p. 252.

[39]The New Zealand Herald (Auckland), July 1, 1974.

[40]IDR, VII (February 1974), pp. 23-24.

beyond 120, and plans for the Santa Barbara Channel call for production from about 255 meters.[41] While some of the deeper water systems probably will be completely subsurface,[42] thus reducing the navigational hazards, it is evident that the limits of national interest already extend beyond the 200 meter isobath.[43]

Deep Seabed Mining

Between 1872 and 1876, H.M.S. Challenger, on her historic cruise, recovered some unimpressive objects resembling smooth lumps of coal from the deep ocean floor. Chemical analysis later showed them to contain ores of manganese, nickel, copper, cobalt, zinc, molybdenum, and other metals, but because of their inaccessibility little attention was paid to them for nearly a century.

By the mid 1960s, however, the progress of technology, the growth of world-wide minerals demand and (presumably), the increased possibility of expropriation of land-based facilities,

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[41] H. R. Brannon, C. G. Lyons, D. E. O'Brien, "Offshore Drilling and Production Technology for Deep Water," in Marine Technology Society (MTS), 10th Annual Conference Proceedings, September 23-25, 1974, pp. 517-528.

[42] See J. C. Shore and C. B. Reeds, "Subsea Oil Drilling and Completion," ibid., pp. 547-555.

[43] The situation only is complicated by the ambiguous language of the 1958 Continental Shelf Convention which defines the depth of the continental shelf limit in terms of exploitation capability.

sparked an interest in deep seabed mining.[44] By 1974, firms from Canada, France, West Germany, Great Britain, Japan and the U.S. were actively engaged in the field, and commercial production may begin as early as 1976.[45]

The most promising nodule locations discovered to date are in the Central Pacific,[46] but experts emphasize that only about three percent of the ocean floor has been extensively surveyed. The nodules occur most commonly at depths beyond 4000 meters (13,100 feet), but have been found in much shallower regions, and even in the Great Lakes. Just what causes them to form is uncertain, but they seem to grow around shark's teeth, pieces of bone, or other previously-existing cores. Whatever their origin, they are being formed continuously at a rate which makes them effectively non-depletable.

The approximate metal content per unit weight of dry nodules is: Manganese 24%, Nickel 1.6%, Copper 1.4%, Cobalt .21%,

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[44] See descriptions of preliminary survey efforts in United Nations, Third Conference on the Law of the Sea, Economic Implications of Seabed Mineral Development in the International Area: Report of the Secretary General (hereafter Seabed Mining Implications) (A/conf. 62/25), May 22, 1974, pp. 14-15. One U.S. recovery system was patented in 1965.

[45] Ibid., p. 8. With the possible exception of Howard Hughes' venture, the principal constraints thus far appear to have been at least as much political as technical. See the next chapter. The USSR also has done nodule surveys.

[46] Roughly from latitude 6°N to 20°N and from longitude 110°W to 180°W, an east-west belt extending from a few hundred kilometers off Acapulco to about 1850 kilometers WSW of Hawaii.

trace metals .37%.[47] By 1985, the UN has estimated that 15 million tons of nodules may be recovered annually, yielding metals as shown in Table 2-4.

The economic implications of these operations depend on a variety of assumptions, but the estimated gross return for a 3 million ton per year mine site ranges from about 250 to 300 million dollars per year, yielding net revenues from 236 to 152 million.[48] Nickel and copper are expected to be the most valuable metals extracted, but recent studies have found traces of precious metals such as platinum. Even in small amounts, these might be economically significant. Aside from the commercial benefits for the firms involved, these developments could have important strategic consequences. Industrialized states could reduce their dependence on Third World resources while improving their balance of payments. Developing countries, however, have been more concerned with the potential damage to land-based producers from price reductions caused by seabed mining. Gabon, for instance, gets some 20% of its foreign exchange from manganese, while Zaire produces two-thirds of the world's mined cobalt.[49]

After careful scrutiny, it has become apparent that manganese nodules will be a less lucrative source of funds for

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[47] Seabed Mining Implications, op. cit., p. 28.

[48] Ibid., p. 71.

[49] Ibid., p. 39.

Table 2-4

MANGANESE, NICKEL, COPPER AND COBALT: PROBABLE PRODUCTION FROM NODULES, ESTIMATED WORLD DEMAND AND ESTIMATED NET IMPORT REQUIREMENT OF INDUSTRIAL COUNTRIES IN 1985 (THOUSAND METRIC TONS)

	Probable production from nodules	Estimated world demand	Production from nodules as a percentage of world demand	Estimated net import requirement of industrial countries[b]	Production from nodules as a percentage of net import requirement of industrial countries
Manganese[c]	920	16,400	6	7,300	13
Nickel	220	1,220	18	770	26
Copper	200	14,900	1.3	3,600[a]	5.5
Cobalt	30	60[a]	50	n.a.	n.a.

Source: World Metal Statistics, UN Statistical Yearbook (UNCTAD), Problems of the World Market for Manganese Ore.

[a] Excluding the centrally planned economies.

[b] Assuming that net import requirements would be proportionately the same as in 1972.

[c] Assuming manganese is produced from only 4,000,000 tons of nodules.

international distribution than once thought.[50] However, they are sufficiently promising for Howard Hughes' Summa Corporation to make the necessary quarter-of-a-billion dollar initial investment on a ship and processing facilities. They also have induced a number of international consortia among less well endowed firms. Once considered to be an area only for the very rich and technologically sophisticated, there are signs that participation may become much more widely accessible as deep sea mining matures--rather as jet aircraft now can be found in a host of developing country airlines.[51]

Yet it has been simply the attention paid to the nodules itself which has brought some of the most profound changes to the oceans. Wide recognition of their potential began to develop in the mid 1960s.[52] More importantly, the prospect of seabed mining was one of the primary motivations behind Ambassador Arvid Pardo's famous 1967 speech to the United Nations and Foreign Affairs article[53] which led the way to the "Common

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[50]Several million dollars a year could be made available, but competing demands will spread this very thin.

[51]John L. Mero, Ocean Resources Incorporated, comments at Johns Hopkins School of Advanced International Studies (SAIS) Conference, "Conflict and Order in Ocean Relations," October 21-24, 1974.

[52]See, for instance, John L. Mero, The Mineral Recources of the Sea (New York: Elsevier Publishing, 1965) and William T. Burke, Ocean Sciences, Technology, and the Future International Law of the Sea (Athens, Ohio: Ohio University Press, 1966).

[53]"Who Will Control the Seabed?" Foreign Affairs, XLVII (October 1968), pp. 123-137.

Heritage of Mankind" concept and the Third UN Law of the Sea Conference. It seems unlikely that deep sea mining alone will transform the oceans in the same way that weapons technology, containerization and petroleum drilling have done. Neither is it clear what kind of a regime will govern such operations. But, by focusing national interest on the riches beneath the deep seas (as opposed to adjacent waters), the nodules have contributed to the death of nes nullius, and accelerated the demise of nearly all traditional concepts of order in ocean space.

The Extraction of Materials from Seawater

It has long been known that ocean water contains vast amounts of dissolved minerals--165 million tons of solids in each cubic mile of the sea, 350 million cubic miles of the sea itself. Most chemical elements have been detected, but only the extraction of salt, magnesium and bromine now are commercially attractive.[54] In the future, however, more uses certainly will be found. Japan recently announced a study for securing stable uranium supplies from seawater.[55] Should fusion power ever be

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[54] Edward Wenk, Jr., "The Physical Resources of the Oceans," Scientific American (September 1969), pp. 82-91. Over 89 percent of U.S. magnesium and the majority of bromine production came from seawater or brine.

[55] Nihon Keizai, July 29, 1974. There are about 14 tons of uranium in every cubic mile of sea water. A similar British study in 1972 found seawater extraction to be competitive if uranium ore prices rose to about $70 to $140 per pound. (1974 prices are in the $8-10 range.) Even such highly priced uranium could produce economical electricity in breeder reactors.

developed, the oceans would become an unlimited energy source since the deuterium which could be used to fuel such a plant occurs naturally as an isotope of hydrogen.

Fresh water itself is an ocean extract whose importance will grow, particularly in the developing countries. The problem, as usual, is the uneven increase in demand associated with improved living standards. In the words of one authority:

> In highly industrialized lands, the demand for water will increase about 50% in the next 10 years, for some developing countries, an increase of as much as 500% is expected during this period.[56]

The minimum subsistence level of fresh water per person is about 2 litres per day (.73m^3 per year). In Tropical Africa the annual per capita consumption averages about 1.5m^3, compared with about 500m^3 in Western Europe, and twice that in the U.S. Yet, some projections hold that world-wide demand soon will reach 1500m^3/ year per person.[57]

There is plenty of natural fresh water available to support this demand, but it is inequitably distributed. Figure 2-2 indicates the coastal regions which have shortages of fresh water.

Some 800 desalinization plants now in operation produce about 1.2 million m^3 of fresh water. Most of it comes from the

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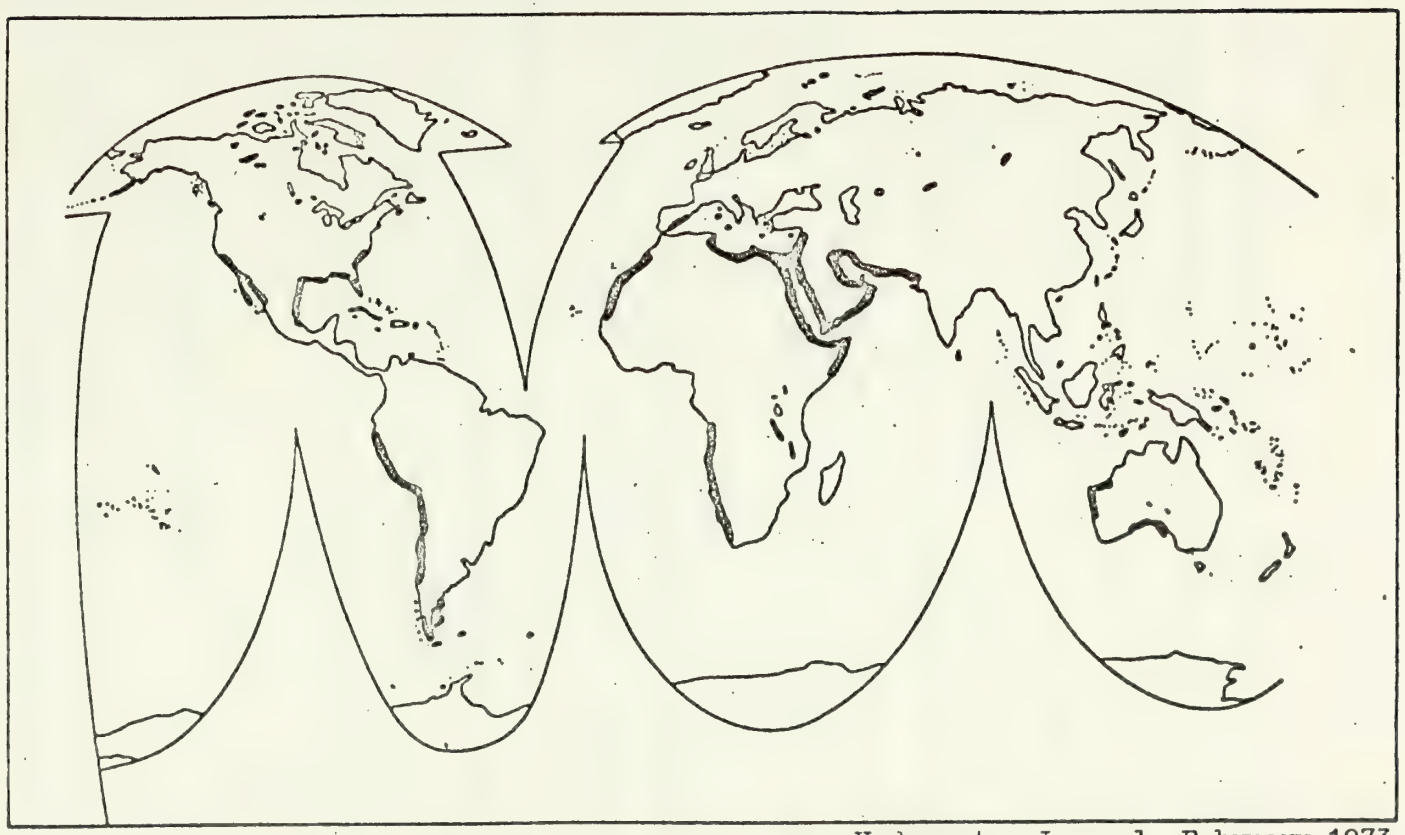
[56]Hubert K. J. Hauser, "Desalinization: The Sea as a Source of Fresh Water," Underwater Journal (February 1973), pp. 9-17.

[57]Ibid., pp. 9-10.

Figure 2-2



Underwater Journal, February 1973

COASTAL REGIONS WITH INADEQUATE FRESH WATER SUPPLIES

sea, but some facilities purify brackish water, rivers or sewerage. This capacity is expected to increase between 5 and 8 times by 1980.

To date, energy costs have been the principal constraint on the widespread production of fresh water from the sea. This is reflected in the concentration of existing facilities in regions like Kuwait, where energy is cheap or on Ascension Island, where there is no alternative. In time, however, the press of demand, together with new technology and the spread of nuclear reactors (whose waste heat can be used for desalinization) will combine to make fresh water plants both more competitive and more important.

Other new and potentially exciting sources of undersea wealth are the hot brine pools discovered in 1964 in the Red Sea. With concentrations of minerals nearly ten times as high as those found in ordinary sea water, they are associated with bottom sediments rich in heavy metals such as zinc, copper, lead, silver and gold.[58] Similar outflows were discovered along the mid-Atlantic ridge in 1974.

Ocean Engineering Structures

Quite apart from oil rigs and seabed storage tanks, the proliferation of man-made offshore structures seems only to have

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[58]Wenk, op. cit., p. 352.

begun. Simultaneous developments in military and petroleum technology, on-shore crowding and pollution, and the growth of tanker size have pushed more and more urban and industrial activities out into the coastal zone. A recent summary of potential uses for offshore islands and platforms developed the following list:[59]

Table 2-5

POTENTIAL USES OF MULTI-PURPOSE
OFFSHORE ISLANDS AND PLATFORMS

DEVELOPMENT AND NUISANCE USES--Possibly harmful to the environment

Waste disposal & recycling

- Solid waste
- Dredge material
- Sewage sludge
- Incineration plants
- Waste treatment plants

Power & energy

- Steam electric generating plants
- Nuclear plants
- Desalinization

Transportation & Access

- Terminals, storage & shipping
  - -petroleum products & LNG
  - -dry bulk cargoes
  - -general cargo & container-ship, import, export, transfer
  - -pipelines
- Airports
- Highways and bridges across sounds
- Access to islands--Causeway, tunnel, ferry, workboat, cables, pipeline, trestle, belt conveyor

Industry

- Manufacturing
- Oil refineries
- Ship building, repair, base for offshore operations
- Commercial fishing port & processing plant
- Oceanographic & research activities

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[59] John McAleer, "Multi-use Potential of Offshore Facilities, Artificial Islands and Platforms in Bays and Estuaries," 10th Annual MTS Conference Proceedings, 1974, pp. 697-714.

CONSERVATION AND ATTRACTIVE USES--Compatible with or enhancing environment

Fish & Wildlife habitat

- Marine parks (limited visitors) and preserves
- Wetlands
- Artificial reefs
- Mariculture

Private recreation & limited residential use

- Same headings as above, plus coastal tourism
- Restaurants, sport & bait shops
- Motels, hotels--boat charter & rental
- Amusement park & boat rides
- Residential

Public recreation & cultural

- Marine parks, museums
- Aquariums, underwater tourism
- Beaches, swimming, water ski areas
- Boating, marinas, moorings, harbor of refuge
- Fishing piers and diving reefs

All of these proposals are within the current state-of-the-art in ocean engineering. Indeed, construction of a special shipyard to build floating reactors has been begun in Jacksonville, though its status is uncertain since some potential customers recently have postponed their orders. The new Ōsaka airport will be located offshore. A floating city prototype has been built in Hawaii which could have real estate costs below those in Waikiki. Additional uses of such platforms have been suggested by the Navy's Mobile Ocean Basing System (MOBS) and the need for mid-ocean weather monitoring stations. Their construction has been facilitated by recent advances in materials technology (notably cement) for ocean engineering. One of the major current problems, however, is a world-wide lack of maritime

capacity. Offshore petroleum exploration is being delayed by a shortage of drilling rigs and tubular products. New construction is limited by the supply of steel and skilled personnel. This condition is expected to persist for several years.[60]

Other studies have indicated the competitiveness of several ocean-atmosphere energy systems, with primary attention being given to the Solar Sea Power Plant (SSPP) employing of solar cells and/or ocean thermal gradients.[61] Table 2-6 outlines some of the possibilities:

Table 2-6

Technologies	Amount of Energy if Harnessed World-Wide	Percentage of U.S. Electricity Demands Which This System Could Meet in the Year 2000
Currents	small	-
Tides	small	-
Winds	small	10%-19%
Salinity gradients	medium/large	-
Thermal gradients	large	12%-17%

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[60] Mr. Roger L. Nelson, Triton Oil and Gas Co. (Manila), interview, May 15, 1974, and Mr. James Blake, Geological Services Ltd. (Singapore), interview, May 30, 1974

[61] See Richard Frye, "The Economics of Unconventional Energy Resources," Patricia J. McWethy, "Process for Determining the Federal Role in Stimulating Development of Ocean Energy Technologies," and L. Wechsler, et al., "Engineering Analysis of Systems for Extracting Useful Energy from the Sea," in 10th MTS Conference Proceedings, pp. 455-499.

The implications of these proposals are consistent with other trends to focus attention on near-shore areas and to broaden the range of off-shore equivalents to traditionally land-based activities. Moreover, they contain the seeds of innumerable disputes, not only over ownership and responsibility, but also over onshore effects from seaward projects. A classic example was offered by the reactions of New York, New Jersey, Pennsylvania, Delaware and Maryland to the possible location of a superport off of Delaware. In addition to environmental worries, there were questions of revenue sharing, compensation for business lost by the Port Authorities of New York, Philadelphia, Baltimore and other cities, rail and road access, coastal storage and piping facilities, and a myriad of other problems. One can imagine the difficulties if the location had involved international interests.

Conclusions

None of the developments outlined in this chapter has been conducive to the continued minimum regulation of ocean space. Moreover, with the exception of manganese nodule mining, the effect of technology has been to reinforce demands to bring the adjacent waters more under national control. Should no international regime of the deep seabed be negotiated (or perhaps even if it is), pressures for the partition of the abyssal floor may follow as well. The struggle between proponents of

unilateral and multi-lateral solutions will be considered in more detail in the next chapter.

Distant-water interests remain strong among the shipping companies, offshore oil producers (if they drill off others' coasts), certain fishermen and the great power navies. The first three, however, are increasingly learning to live with the restrictions through multinational operations, while the last are constrained by political and technical factors which, though changeable, are largely beyond their control.

Chapter Three

THE UNSETTLED MARINE POLITICAL CLIMATE

In response to advances in both military and commercial technology the marine political climate also is changing. For the most part the legal and political changes have been directed at specific new activities, but the cumulative effect has been to undercut the basis of unimpeded maritime commerce and naval operations.

The Foundations of Freedom of the Seas

The freedom of maritime commerce was codified at Paris, in 1856.[1] In fact, this was the culmination of a lengthy process, corresponding in part to the replacement of mercantilism by free-trade liberalism. In 1805, Britain gave up her demand for Channel salutes. The Royal Navy started its work as the world's policeman even before the end of the Napoleonic Wars, and soon was pressing for a universal three-mile territorial sea.[2]

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[1]Where Britain finally accepted the principle that free ships make free goods--to her great regret in 1914. This declaration also eliminated privateering, although privateers were sponsored by the Confederacy as late as February 1863.

[2]Michael Lewis, The History of the British Navy (London: George Allen and Unwin, 1959), pp. 189-197.

In 1855, Denmark began the abolition of the Sound Dues--the last of the government-imposed tolls in international straits.[3] Finally, by the mid-1850s the multitude of coastal jurisdictions which had harbored the Barbary Pirates, the East and West African slavers and the Asian pirates nearly had been eliminated.

The process by which piracy and slave trade finally were brought under control deserves consideration at some length. Not only is it illustrative of the fragility of the concept of freedom of the seas,[4] and the conditions necessary for its maintenance, but it also provides some pertinent analogies for the present era of expanding coastal state jurisdictions. This is not to suggest that coastal state claims are equivalent to piracy. Neither is the resumption of widespread slave trading expected. The point is that infringements on maritime commerce usually are concentrated in a fairly limited geographic region. If there are no universally accepted norms governing the relations between coastal states and shipping, or if there is

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[3]See Charles E. Hill, The Danish Sound Dues and the Command of the Baltic (Durham: Duke University Press, 1926), pp. 228-67.

[4]"Freedom of the Seas" has been used in a variety of ways. In fact, it is much easier to define what it is not than what it is. Herein it shall mean the establishment of an environment at sea which is conducive to the free and safe passage of maritime commerce, subject to a minimum of disruptions in peacetime by governments or other organizations. This description is offered in clarification of a general concept. Further precision probably would lead to more semantic difficulties than it would solve.

no single power or coalition capable of defending the freedom of navigation world-wide, it quickly will be restricted somewhere.[5] Thus, it is in the interest of the trading nations to see that there are naval forces in each region which are strong enough to protect seaborne trade. These may belong to the maritime powers themselves, or to regional states. In the latter case, however, it behooves the trading states to ensure that the regional power in question has enough of a stake in free maritime commerce to defend it rather than control it for her own interests.

The brief histories that follow may seem unrelated to modern Japanese seapower. Hopefully, however, they will illustrate some of the problems of restoring order at sea once it has broken down. Of particular note is the coordination necessary between political and military activities in the resolution of regional maritime problems.

The Barbary Corsairs (1500-1830)

The Barbary Corsairs evolved from the Moors expelled from Spain in the late 15th and early 16th centuries. At first motivated as much by political and religious motives as by the

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[5]Captain Walsh has argued that merchant shipping may be exempt from many of the North-South disputes since the flow of goods also has become critically important to the developing countries. This may well be true in general, but such an exemption will require that all countries take a more-or-less unemotional view of their interests. It seems at least equally likely, therefore, that there also will be exceptions (restrictions on commerce) from time to time.

search for plunder, they soon became identified with the Turkish cause. One of their number, Kehyr-ed-Din actually supervised the building of the Ottoman Navy in 1534. After the myth of the "Invincible Turk" was shattered at Malta (1565) and Lepanto (1571), the seamen of the Barbary coast reverted to piracy, at which they remained until the 19th century.

Lane-Poole[6] charges that there was no real European attempt to suppress the piracy between the death of Andrea Doria in 1560 and the British-Dutch bombardment of Algiers in 1816. The reason was basically that the European states had recognized the sovereignty of the Barbary Pirates and used them in various alliances against each other. Pella repeats this charge, noting:

> L'Europe, dont l'unité fut détruite par la Réforme, se refusait à faire bloc contre le danger commun.[7]

Some relief was provided, however, by Louis XIV's Ordonnance de la Marine of 1681.

The United States' campaign on the Barbary Coast between 1801 and 1805 was the first serious effort against the pirates since the 16th century. It led to the freeing of U.S. commerce from tribute and the release of prisoners, albeit at the cost of an indemnity. But when American warships were withdrawn from the Mediterranean in 1812 the piracy began again and another

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[6]Stanley Lane-Poole, The Story of the Barbary Corsairs (New York: G. P. Putnam's Sons, 1890).

[7]Vespasien Pella, "La Répression de la Piraterie," Recueil des Cours, XV (1926-V), p. 162.

naval exercise was necessary in 1815. By this time, however, European attitudes toward freedom of the seas had begun to change and further tolerance of the pirates was short-lived.

In 1816, the response to an especially outrageous set of demands by the Dey of Algiers was a bombardment of the city by a British squadron with some Dutch units in company. Although several concessions were extracted, by 1820 nearly all had been abrogated and another bombardment followed in 1824.

Piracy on the Barbary Coast was not finally suppressed until 1830, however, when the French invaded Algeria and exiled the Dey.

Thus the maritime strength of the Barbary States was developed for religious and political wars and turned to piracy in the absence of adequate police authority at sea. Their immunity was guaranteed by the struggles for European hegemony, and the piracy remained until the political climate on the coast itself was changed by the imposition of French rule. Seapower alone was insufficient.

The Chinese Pirates (1832-1869)[8]

Although piracy had existed along the China coast for thousands of years, Admiralty interest really stemmed from 1832

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[8]Most of this section is from Grace Fox, British Admirals and Chinese Pirates, 1832-1869 (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1940) and Harry Miller, Pirates of the Far East (London: Robert Hall & Co., 1970).

under the influence of Sir James Graham's economy reforms and fleet re-deployments. Even more important was the expiration in 1834 of the East India Company's monopoly of the China trade. Heretofore, the company had used its own resources to protect its ships and His Majesty's warships rarely were required. Thereafter, however, especially after the Opium War (1839-42), the Royal Navy's responsibilities in the region increased markedly.

Significant problems with multiple jurisdictions soon were encountered. The Admiral commanding the station was responsible for activities on the high seas, the Peking government for those within Chinese territorial waters, and the British Consul at Hong Kong (a pirate center) for those within his sphere. In 1848, the standing orders to flag officers on the China Station were changed to include the suppression of piracy in Malaysian and Chinese waters as a major target of the Royal Navy. The Navy also was ordered to cooperate with Chinese authorities in coastal regions.

Britain bore this burden alone between 1848 and 1860, without great success. Chinese authorities usually insisted on primacy in their own areas which led to the ineffective enforcement of anti-piracy laws. In 1858, however, the Treaty of Tientsin included a provision on piracy, thus becoming the first formal agreement between London and Peking which specifically dealt with the issue. Hong Kong finally took effective measures

to control pirates in her harbors in 1866. More significantly, liability soon was extended to those who traded in pirated goods as well. Finally, concluding a momentous year, Britain proposed that (a) China should let the Royal Navy handle pirates anywhere on the coast, (b) other maritime powers should assist in the campaign and (c) China should pay for the increased British involvement. By 1869 the international force was operating, although Britain still carried the lion's share.

At last, in 1869, after his own attempts to disarm junks had proved unenforceable, the Viceroy of Canton established a junk register, which reduced the problems of junk identification. Once this was implemented, the British tended to leave the suppression of pirates which preyed only on non-European shipping to the Chinese, while their own task was greatly simplified. Within a year (!) attacks on foreign merchantmen had all but ended, and the Royal Navy soon restricted itself to the high seas and those remote parts of the coasts where the Chinese needed assistance.

There was some resurgence of piracy during the 1920s and 30s in connection with the general breakdown of internal order in the country. This eventually was curtailed by strict security measures aboard merchant ships and the large number of foreign warships then on China station.

The problem of maintaining freedom of the seas along the Chinese coast was largely one of overcoming sanctuaries created

by multiple jurisdictions, some of which did not have the power to enforce their regulations. Similar circumstances are evident in the history of the Caribbean, Indian Ocean and Malay pirates.[9]

The Slave Traders (1807-1890)[10]

The Royal Navy began its campaign against the West African slave traders in 1808, a year after the Abolition Act. For nearly twenty years it was an almost unilateral activity. Moreover, it was frustrated by insufficient forces, the unwillingness of France and the United States to permit foreign searches of their vessels, excessively strict rules of evidence, the personal financial liability of British commanders in cases of nonconviction and the reluctance of governments and businessmen alike to suppress a profitable trade.

Progress was made with the enlistment of French assistance in 1828 and the progressive acceptance of the equipment clause by various countries.[11] The Webster-Ashburton Treaty of 1842

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[9]See, for instance, George A. Ballard, Rulers of the Indian Ocean (London: Houghton Mifflin Co., 1928), Nicholas Tarling, Piracy and Politics in the Malay World (Singapore: D. Moore, 1973), and Albion and Pope, op. cit. (note 1-49), pp. 139-147.

[10]Most of this section is from E. A. Alpers, The East African Slave Trade (E. African Publishing House, 1969), and W. E. F. Ward, The Royal Navy and the Slavers (London: George Allen and Unwin, 1969).

[11]This clause considered the presence of irons and other slaving equipment to be sufficient evidence that a vessel had been slaving. Previously it was necessary to catch a ship with slaves aboard.

led to the establishment of an American West African squadron (although USS Dolphin had patrolled the coast two years earlier) which was well coordinated with the British. This was important, since a ship could no longer avoid search merely by hoisting American colors. About the same time, anti-slaving treaties were concluded with some of the African chiefs.

By 1850, the principal surviving trades were with Brazil, and with the U.S. via Cuba. The first was notoriously slow to enforce its anti-slavery laws and so, after five years of unsuccessful negotiations, a British admiral finally acted on his own against slave ships in Brazilian waters. Numerous diplomatic protests ensued, but the measure was successful and the Brazilian slave market was closed by 1853.

Throughout the 1850s British presence and commerce increased along the West African Coast, further restricting the sources of slaves. The American Civil War was the coup de grace, and the final closure of the Cuban market came in 1869.

The East African slave trade was slower to develop but outlived its West Coast counterpart. In part its growth was stimulated by the British campaign in the Atlantic. For many years, the Atlantic south of the equator was beyond the jurisdiction of the anti-slavery patrols. Therefore, Brazil began to shift its procurement to Mozambique.

The Royal Navy established a patrol in the Indian Ocean in 1822 following the Moresby Treaty with the Sultan of Oman.

Although French and Brazilian merchants drew slaves from this area, the principal demand was generated by the growth of plantation economies in Zanzibar and the Pemba Islands, as well as the Omani commercial empire in the northwest Indian Ocean. When, in 1840, the Omani capital was moved from Muscat to Zanzibar, the task of the naval patrols became almost impossible. Slave ships now proceeded along coastal routes controlled by sympathetic rulers and needed only to put ashore whenever a warship hove into sight.

The trade was at its height in 1873 when a threatened British blockade against the Sultan of Zanzibar forced the Anglo-Zanzibar Treaty. This forbade the exportation of slaves and included a promise from the Sultan to close his slave markets. By 1880 the overt trade had virtually disappeared, although it was reported to have persisted in less obvious forms well into this century and even today.

Summary

Several conclusions may be drawn from these examples. Among them are:

(1) That naval power, by itself, rarely is decisive. The intervention of troops, either army, marines, or shore parties, or the conclusion of political agreements nearly always was necessary to achieve a permanent settlement. To cite an example from a different setting, Trafalgar removed the invasion threat to Britain, but it would not have done Napoleon very much harm had

no troops been available to pour into the Peninsula. A host of studies and surveys since World War II make it possible to extend this conclusion to the solitary exercise of air power as well.[12]

(2) That the freedom of the seas is a fragile concept, requiring at least three elements for its establishment and maintenance.

(a) A community of interest among the maritime powers. Note the rapidity which the Barbary Pirates disappeared once Britain and France stopped using the pirates to harass each other. G. S. Graham[13] also has argued that the lack of major conflict at sea

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[12]For instance, United States Strategic Bombing Survey (European War), 208 vols., and (Pacific War), 108 vols. (Washington: U.S. Government Printing Office, 1946-48), and Raphael Littauer and Norman Uphoff, eds., The Air War in Vietnam (Boston: Beacon Press, 1972). The closest things to exceptions in the Twentieth Century have been the submarine campaigns against Britain and Japan. Had the U-Boats not been defeated, Britain probably would have been unable to continue to play an active part in the War. Whether or not surrender could have been induced without invasion is not clear. By the same token, although Japan was prostrate from the destruction of her transportation and from naval and aerial bombardment, invasion would have been necessary without the dual shocks of the atomic bombs and the Soviet entry into the War. The U.S. Navy played an important role in the Cuban Crisis, but without the nuclear threat, it is hard to assert that the affair would have been settled so neatly. Those who claim that the 1972 mining of Haiphong and the Christmas bombing of Hanoi brought the Vietnam war to a close neglect the intricate diplomatic arrangements which preceded and accompanied these acts. In any case, until the North Vietnamese archives are opened, such arguments are circumstantial.

[13]G. S. Graham, The Politics of Naval Supremacy (Cambridge: University Press, 1965).

during Pax Britannia depended as much, if not more on the European equilibrium and the interests of the Continental powers in free trade than on the strength of the Royal Navy.

(b) The elimination of conflicting jurisdictions which offer sanctuary to offenders. Key victories in the suppression of the slave trade were the abolition of havens south of "The Line" in West Africa and along the East African coast after the Treaty of Zanzibar. Chinese piracy was under control within four years after the elimination of Hong Kong sanctuary and the granting to the international force of the right to pursue its quarry anywhere along the coast.[14]

(c) The presence of naval forces adequate to protect shipping where necessary. Despite multi-national assistance on occasion, the bulk of this task usually has been borne by a single global naval power both in Roman and recent days. In principle, however, there is no reason why two or more navies could not

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[14]An interesting confirmation of these principles was provided by U.S. Coast Guard efforts against the rum runners during prohibition. Key elements in the campaign were agreements with Britain, Germany and Sweden extending the area where the U.S. could carry out searches. Among the smugglers themselves, piracy soon became commonplace. See Malcolm F. Willoughby, Rum War at Sea (Washington: U.S. Government Printing Office, 1964), pp. 21-59.

act jointly or separately in different geographical areas. These points will be explored at length below.

The Current Status of Maritime Politics

The concept of freedom of the seas is thus a fragile one. All three of its basic elements are in danger today, and are likely to remain so for some time. (1) In the law of the sea negotiations many coastal states have indicated that the status quo in ocean economic activities is not in their interest. Regardless of the final treaty wording, such differences of opinion will persist. At the same time, (2) a host of conflicting jurisdictions is on the verge of appearing.[15] Furthermore, it is precisely within the areas bounded by such zones where surface ships will be most vulnerable to SSMs or ASMs. Thus, (3) the worldwide exercise of naval power is threatened by extensive legal and political claims which are backed by a newly-expanded coastal state ability to enforce them.

The Limitations on Global Naval Force

It must be reiterated that the present shackles on the major naval powers are only partly technological. At least in

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[15]Proposals have included over 100 exclusive economic zones of up to 200 miles, an equal number of territorial seas, mostly of 12 miles but with broader exceptions, and various other regimes of the deep seabed and continental margin whose form is not yet clear.

the West, they stem more from electorates' unwillingness to support military campaigns against developing coastal states than from an actual imbalance of power at sea. This is particularly true if such an operation were likely to be costly or embarrassing. The remoteness (to the man on the street) and complexity of most law of the sea issues reduces the expected amount of support still further. This does not make the shackles any less real, although it does imply that they may only be temporary. As Robert Osgood noted:[16]

> . . . the political costs of the United States forcibly protecting American tuna fishers against the claims of sovereignty by Peru always seemed excessive compared to what could be gained by such drastic measures and what would be lost without them. But it is misleading to infer from this situation that the United States would be equally passive in the face of some threat to a more serious economic interest or to a military security interest.

Many, of course, would not lament the demise of global naval forces, for both the U.S. and the Soviet Union. The fact remains, however, that only twice in recorded history has maritime commerce been able to move without widespread interference by piracy or government-imposed tolls of one form or another.

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[16]"U.S. Security Interests in Ocean Law," ODIL, II (Spring 1974), p. 29. Professor Hedley Bull of the Australian National University, put forth the interesting proposition that the present European and American wariness over the use of forces comes from having been on the wrong side in a recent series of colonial wars. Similarly, the developing countries have had an almost unbroken string of successes. Interview, June 19, 1974. Presumably, such sentiment would be reversible if the tide of battle changed.

The first period was from the Battle of Actium (31 BC) to the middle of the 3rd century AD while the Roman Navy dominated the Mediterranean.[17] The second, from the mid 19th century onward as the Royal Navy, in concert with those of other powers, completed the suppression of piracy world-wide.[18]

The inability of naval (and air) power to achieve a final conclusion is likely to continue, if not become even more pronounced. All the convoy escorts in NATO would not help the Indian Ocean sealanes if oil supplies were cut off at the wellhead. The full tactical aviation resources of the 7th Fleet and the 7th Air Force could not halt the 1972 North Vietnamese invasion of the South until the South Vietnamese ground forces stood and fought. A submarine blockade might in principle be able to bring Japan, or even the U.S. to her knees, but it is unrealistic to think that such a campaign would remain strictly at sea if the nations' survival were genuinely threatened. Even the ultimate exercise of air (and sea) power, a nuclear exchange,

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[17] See John Van Duyn Southworth, The Ancient Fleets (New York: Twayne Publishers, 1968), pp. 218-222, 297. Also William L. Rodgers, Naval Warfare Under Oars (Annapolis: USNI, 1939), pp. 3-4 and Pella, op. cit. (note 3-7). In point of fact, Pompey had conducted an extremely successful campaign against the pirates in 67 BC, but they returned amidst the power struggles which eventually led to Actium.

[18] It is not true, of course, that piracy was totally eradicated. The immediate effect of the Royal Navy's entry into Chinese coastal waters was to discourage attacks only on European merchantmen. The fate of local sailors had to await the arrival of strong, anti-pirate local governments. In Southeast Asian seas (and probably elsewhere), a similar situation prevails to this day. Disorder, not tranquillity, is a natural condition on an un-patrolled ocean.

could not prevent some groups of citizens on both sides from re-establishing their governments and continuing the struggle if they so chose.

None of this is to decry the utility of naval and air forces. They are indispensable tools in a nation's military and diplomatic arsenal. But their limitations must be remembered. So long as the majority of people live on the land there can be no ultimate weapon at sea or in the air alone. If communities were located on the seabed, then control of the water column in itself would be sufficient. Until that time, other elements of persuasion also must be employed.

Extended Coastal State Claims

The variety of claims which have been made on the world's oceans since 1945[19] has been the subject of an enormous volume of literature.[20] Still, some review is necessary for background. The claims may be grouped into (1) territorial sea, (2) economic zones on the seabed and in the water column, (3) anti-pollution zones. It will be contended later that these are indicative of

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[19]The process was started by the two "Truman Declarations" of September 28, 1945, by which the United States laid claim to the "subsoil and seabed of the continental shelf" and to certain historic fisheries. Peru responded with a 200 mile territorial sea in 1947, and the process has accelerated ever since.

[20]By September 1974, the Third UN Law of the Sea Conference documents had run to over 13,000 pages.

a fundamental change in the nature of thinking about the oceans themselves.

(1) The Territorial Sea

Territorial Sea claims may themselves be subdivided into three categories--the 12 mile limit, archipelegos, and broader claims.

(a) The 12 mile limit. One likely outcome of the UN Law of the Sea Conference will be a general extension of the historical, but outmoded, three mile limit to 12 miles.[21] Even with a treaty, however, some states probably will continue to claim broader areas.[22]

Under such limits some 116[23] straits between 6 and 24 miles in width would fall entirely within the territorial waters of their riparian states. Since the rules of innocent passage[24] apply within the territorial sea, the transit of these straits

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[21] See S. A. Swartztrauber, The Three Mile Limit of the Territorial Sea (Annapolis: USNI, 1972).

[22] In October 1974, a breakdown of territorial sea claims was as follows:

Less than 12	12	13 to 50	51 to 200	Other
46	52	8	11	4

Source: Office of the Geographer, U.S. Department of State.

[23] The number varies, ranging from 105 to 121 depending on the source. 116 is the figure used by the U.S. Department of State.

[24] The basic conditions of innocent passage are that (1) navigation shall not be "prejudicial to the peace, good order or security of the coastal state," (2) submarines must navigate on the surface, and (3) there is no right of aircraft overflight above territorial waters.

is exposed to the coastal state's definition of innocent. The major naval powers contend that, since the straits historically have been high seas, their accessibility cannot suddenly be conditioned by such subjective judgments. Moreover, in an era of strategic missile submarines and intercontinental airlift, the provisions of innocent passage are inadequate for the protection of great power interests.

The security implications of straits transit have been the subject of extensive debates,[25] which need not be repeated here. In any event, the issue will be re-examined later in connection with Japan's particular needs (see page 246). Whatever the out-

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[25]The U.S. view, and the enunciation of the "Free Transit" doctrine, was presented in Subcommittee II of the UN Seabed Committee on July 30, 1971 (A/AC.138/SCII/L.4; A/8421, pp. 241-245). The Soviet Union, which has been closely aligned with the U.S. on this issue, announced its view on international straits on July 25, 1972 (A/AC.138/SCII/L.7; A/8721, pp. 16 -163). Typical coastal state objections and counter-proposals were made by an interesting alliance of Cyprus, Greece, Indonesia, Malaysia, Morocco, Philippines, Spain and Yemen (A/AC.138/SCII/L.18 of March 27, 1973). The People's Republic of China (PRC) consistently has denounced the imperialistic ambitions of both superpowers. At one time, the U.S. seemed ready to back off from the overflight and submerged passage provisions of "Free Transit," but the denial of landing rights by European allies during the Yom Kippur War airlift forced the aircraft to overfly the Straits of Gibraltar (Aviation Week, December 12, 1973) and may have hardened the U.S. position again. Within and without the U.S. government a debate has continued over the advisability of risking other American interests solely for the sake of free transit. For a detailed analysis, and dissenting conclusions, see Robert E. Osgood, "U.S. Security Interests in Ocean Law," op. cit. (note 3 - 16), whose publication was bitterly opposed by the Navy. In an effort to make "Free Transit" more palatable, it recently has been slightly re-defined and re-presented under the title "unimpeded passage."

come of the 1975 meeting in Geneva or later conferences, the disagreement is likely to persist. If the developing country majority insists on a convention stipulating innocent passage, the superpowers probably will not ratify it, thus destroying its practical utility. If a convention with an acceptable guarantee of transit is concluded it almost certainly will be challenged by a future revolutionary government which can claim that it was not represented, or by a present one which refuses to sign the agreement. If no compromise is reached, the issue is likely to be tested by force sooner or later.[26]

Even without transit restrictions, there are a variety of economic advantages which a coastal state could reap from its newfound sovereignty. One such measure would be tolls.[27] Others are more subtle. For instance, Singapore's Foreign Minister Rajartnam, offered the following comments about the Straits of Malacca in a Japanese press interview:

> I have no such idea [to collect tolls. But] for providing facilities useful for correct and safe navigation, mainly buoys, communication facilities

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[26] In a sense, it already has, with the blockade of the Straits of Tiran in 1957 and again a decade later. Also, the dispatch of the U.S. carrier Ticonderoga into the Red Sea in early 1974. The fact that the major power warships have not actually opened fire in straits recently does not remove the threat inherent in their presence.

[27] There are several reminders of past practices of this sort. For instance, the town of Tarifa, on the Spanish side of the Straits of Gibraltar, derives its name from its function as a collection point during the Moorish occupation.

> and light houses, and for dredging operations in the strait, a huge amount of expenses [sic] is required. We want those nations using the strait to bear them proportionately.[28]

(b) The Archipelago Doctrine. As first enunciated by the World Court in 1951, the basis for this doctrine is that straight base lines longer than twice the width of the territorial seas may be drawn between points in an archipelago in order to distinguish it as a single geographic entity.[29] There are a number of coastal and mid-ocean archipelagoes whose limits are in dispute, but the principle areas of international concern are the five archipelagic states: The Bahamas, Fiji, Indonesia, Mauritius, and the Philippines.[30] The key to their claims lies in the "intimate and inseparable combinations of land and sea"[31] for an archipelagic state. From the standpoint of the maritime powers the principle objections have been (1) a lack of historical and legal precedents, (2) the relatively small land-to-water ratio in most of the archipelegos, (3) the implications for transit, (4) the implications for marine resources.

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[28] Mainichi Shimbun (hereafter Mainichi), August 6, 1974. Translation from U.S. Embassy, Daily Summary of the Japanese Press (hereafter Press Summary).

[29] ICJ Reports, 1951.

[30] Papua-New Guinea is likely to claim similar status for the Bismarck and Louisiade archipelagoes when it becomes independent in 1975.

[31] Judge Jorge Coquia, quoted in "The National Territory," New Philippines (Manila), February 1974, p. 1.

In point of fact, most of the important international straits which would be affected by the Archipelego Doctrine (Lombok, Sunda, Ombai-Wetar, New Providence Channel) also would be enclosed by a 12 mile territorial sea. The most important difference is that the archipelagic states consider the waters within their base lines as internal.[32]

Archipelagoes also have been the subject of extended debates, with the result that the concept has won steadily increasing acceptance. Even the United States has indicated a willingness to recognize the principle in exchange for some agreement on transit rights.[33]

Whether or not the Law of the Sea Conference resolves the issue, the Archipelago Doctrine will not be dismantled. It provides exceptional potential for the political and economic development of appropriately situated states. Moreover, it is in keeping with the growing world-wide tendency to blur the distinction between land and sea. (See below, p. 135.)

(c) Broader Coastal State Claims. In 1974, 22 states claimed territorial seas greater than 12 miles.[34] Some of these

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[32]Internal waters are completely subject to coastal state control, i.e. there is no right even of innocent passage.

[33]It was reported by various sources in Indonesia and the Philippines during interviews with the author in May and June 1974, that a U.S. negotiating team had brought up the subject while visiting the area in the Spring of 1974.

[34]U.S. Department of State, Office of the Geographer (includes archipelagic states). One of the four states listed under "other" on page 111 has put forth no specific claim.

were subject to disclaimers about not infringing on the freedom of navigation. Others probably will be converted to economic zones if a 12 mile limit were universally agreed upon. Some holdouts for extended claims probably will remain even if a general convention were negotiated, but none of these is strategically critical in the sense that such a stand would infringe on a major waterway. There is, however, a danger of territorial sea claims expanding again in the future, possibly under the guise of increasingly strict controls over economic or pollution zones. This will be discussed more fully in the next chapter.

(2) Economic Zones

Economic Zones are designed to give coastal states preferential or exclusive rights[35] to exploit the living and non-living resources of the seabed, the subsoil thereof, and/or the superadjacent water column. The alternative proposals for such zones have been bewildering,[36] but it appears that some form of coastal

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[35]A preferential right allows a coastal state to exploit the resources to the full extent of its capability, after which it is open to the international community within the limits prescribed by conservation. Exclusive rights, as the name implies, leave the admission of foreigners totally at the discretion of the coastal state.

[36]No less than 29 sets of declarations or proposals, falling into 9 major groups were put forward in the Law of the Sea Conference preparations. See Tentative Comparative Table of Proposals, Declarations, Working Papers, etc., Relating to Subjects and Issues Allocated to Sub-Committee II (SC II/WG/ Paper No. 4, with Revision 1 through July 19, 1973).

state primacy will be established within a 200 mile limit and possibly further in some cases.[37]

Table 3-1 summarized the ocean areas which would accrue to each of the top 10 coastal states under four different regimes; a 40 mile limit, 200 miles, the 200 meter isobath, and the edge of the continental margin. Note that, in most cases, the 200 mile limit also includes the edge of the margin. Not surprisingly, the major beneficiaries usually are the developed countries. What is more important, however, is the potential ocean contribution to the national resource base under the exclusive economic zone. Table 3-2 presents some of the likely allocations of offshore minerals, petroleum and natural gas within a 200 mile zone. For several countries, notably Mexico, Britain, Norway, Nigeria, Angola, Indonesia and Malaysia, offshore petroleum deposits represent a major expansion of the national resource base. It goes without saying that every effort will be made to strengthen the states' grip on these reserves. It also seems likely that such claims will, in time, spread from the seabed to the water column above it.

Despite the tremendous importance of minerals within the

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[37]Australia, for instance, has proposed a 200 mile limit or the edge of the continental margin, whichever is further. Moreover, in cases of overlap between a 200 mile zone and another state's continental margin, ". . . The natural phenomenon of the margin should always prevail over the artificial rule of 200 miles . . ." See "Preventing a Scramble for the Seas," xerox copy from an unidentified magazine, p. 653, provided by the Australian Foreign Office, Canberra.

Table 3-1

RANK ORDER OF SEABED AREAS ACCRUING TO COASTAL STATES UNDER DIFFERENT CLAIMS

(in Sq. Nautical miles)

Rank	40 n.m.	200 n.m.	200 meters	Edge of Margin
1	Indonesia (1,031,100)	U.S. (2,222,000)	Canada (846,500)	Australia (1,445,400)
2	Canada (963,000)	Australia (2,043,300)	Indonesia (809,600)	Canada (1,240,000)
3	Soviet Union (857,200)	Indonesia (1,577,300)	Australia (661,600)	Indonesia (1,229,800)
4	U.S. (731,900)	New Zealand (1,409,500)	U.S. (545,400)	U.S. (862,600)
5	Australia (408,600)	Canada (1,370,000)	Soviet Union (364,300)	Soviet Union (735,900)
6	Mexico (236,100)	Soviet Union (1,309,500)	Argentina (232,200)	New Zealand (571,100)
7	Philippines (230,200)	Japan (1,126,000)	PRC (230,100)	Argentina (484,100)
8	Brazil (189,700)	Brazil (924,000)	Brazil (224,100)	Norway (463,700)
9	Japan (180,100)	Mexico (831,500)	U.K. (143,500)	Japan (440,900)
10	Norway (178,000)	Chile (667,300)	Japan (140,100)	Brazil (435,700)

Source: U.S. Department of State, "Theoretical Areal Allocations of Seabed to Coastal States . . ." International Boundary Study Series A, Limits in the Seas, No. 46, August 12, 1972.

Table 3-2

OCEAN RESOURCE POTENTIALS

Country	Offshore Oil	Offshore Natural Gas	Distance to Nodule Concentration (nautical miles)
N. America			
Bahamas	-	-	50-200
Canada	III	III	50-200
Dominican Republic	-	-	50-200
Haiti	-	-	50-200
Honduras	-	-	50-200
Mexico	II	II	0-50
USA	II	I	50-200
S. America			
Argentina	III	III	-
Brazil	-	III	-
Chile	-	III	50-200
Columbia	-	III	-
Ecuador	-	III	-
Trinidad & Tabago	-	III	-
Venezuela	III	II	-
Europe			
Italy	-	III	-
Netherlands	-	III	-
Norway	III	III	-
Poland	-	-	0-50
Sweden	-	-	0-50
UK	III	III	-
Africa			
Angola	-	III	-
Egypt	III	III	-
Gabon	-	III	-
Libya	II	II	-
Nigeria	III	III	-
S. Africa	-	-	200-400

Country	Offshore Oil	Offshore Natural Gas	Distance to Nodule Concentration
Asia			
Bangladesh	-	III	-
Burma	-	III	-
PRC	-	III	-
India	III	III	-
Indonesia	III	III	-
Iran	III	II	-
S. Korea	III	III	-
Kuwait	III	-	-
Malaysia	III	III	-
Philippines	-	III	-
Qatar	III	III	-
Saudi Arabia	II	II	-
USSR	II	II	0-50
Union Arab Emirates	III	III	-
Oceania			
Australia	III	II	200-400
New Zealand	-	III	-

III - 10 to 100 billion bbls of petroleum or 10 to 100 trillion cubic feet of natural gas
II - 100 to 1000 billion bbls of petroleum or 100 to 1000 trillion cubic feet of natural gas
I - Greater than 1000 billion bbls of petroleum or 1000 trillion cubic feet of natural gas

Dash indicates fewer than 10 billion bbls or trillion cubic feet, not that there are no reserves at all.

Potential reserves are estimates based on general geological structure. They usually are a few orders of magnitude larger than proved recoverable reserves, but have been used because extensive investigation of offshore fields has only recently begun.

Distance to manganese nodule concentrations is the distance to sites with moderate density or greater. Sparse density sites have been disregarded.

Source: John P. Albers, et al., Summary Petroleum and Selected Mineral Statistics for 120 Countries, Including Offshore Areas, Geological Survey Professional Paper 817 (Washington: U.S. Government Printing Office, 1973).

economic zone, disagreements over the living resources of the sea are likely to be the most frequent and visible of ocean controversies. Fisheries disputes always have been volatile.[38] However, with catches of traditional fish approaching physical limits, they are bound to intensify. The initial impact of this technological progress has been two-fold. Coastal fishermen in developing and developed countries alike have demanded increased national protection. An offshoot has been the spread of the South American view that fish are natural resources, having a similar status to the mineral deposits of the continental shelf.

At the same time, many distant water operators have come to approach national claims more with an attitude of compromise than of defiance. Joint ventures and foreign subsidiaries, in particular, have become popular means of getting at least some of the fruits from catches in foreign coastal waters.

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[38]Note the disputes which led to the Anglo-French Agreement of 1839, and the North Sea Convention of 1882. Practically the entire history of U.S.-Canadian relations along the Atlantic coast has been marked by one fishery problem or another. Cable, op. cit., (note I-5) lists 79 cases of naval intervention between 1946 and 1969. Of these, 10 involved fisheries. But this does not include the hundreds of fishing boats that are taken every year, particularly in the Northwest Pacific. In addition, since 1970, there have been the second Cod War between Britain and Iceland, several incidents of shooting in the Gulf of Thailand, continuing seizures of foreign tuna boats off South America, the arrest of a fisheries research ship of an international organization by Burma, and other problems.

(3) Pollution Zones

Among the broadest restrictions which nations unilaterally have placed on the uses of the ocean in recent years have been anti-pollution zones. These have not been limited to developing countries, as Canada has been among the leaders in its domestic legislation. Efforts to control pollution represent a significant step in the extension of land-based control over the seas, although their full impact may not be felt for some time.

One major problem is the disparity of standards between different nations. Even since the potential danger was highlighted by the 1967 Torrey Canyon sinking, various forms of limitations on pollution in national waters have been implemented, and international standards on ocean dumping codified.[39] Unfortunately, however, the approaches which different nations have taken sometimes have been incompatible. The U.S., for instance, requires certain safeguards in the construction of the ship itself.[40] Iran, on the other hand, has proposed that ships entering the 50 mile zone must have adequate insurance coverage.[41]

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[39]Mostert argues compellingly that even these efforts are inadequate in view of the destructive potential of the VLCCs and ULCCs.

[40]See the proposed Coast Guard changes to the Ports and Waterways Safety Act of 1972 (33 U.S.C., 1221 et seq.) in Federal Register, June 28, 1974. Parts of the Federal Water Pollution Control Act of December 21, 1972 also apply.

[41]Robert Osgood, "U.S. Security Interests in Ocean Law," op. cit., p. 27.

Japan's laws, despite severe local pollution problems, are relatively mild.[42]

Preliminary results from Caracas point to a future effort to set international standards while leaving coastal states free to establish more restrictive laws in their own waters. The difficulties lie in the authority assigned for enforcement of these standards. Some claim that the coastal state should have full powers to arrest vessels polluting in its territorial sea. Others want minimum coastal state control to avoid the possibility that exaggerated pollution claims may be used to restrain or fine foreign vessels.[43] The U.S. Navy, for one, has gone to great lengths to minimize vessel-source pollution. This is not only because of U.S. regulations, but also to avoid future restrictions on mobility through coastal state pollution regulations.

The Regime of the Deep Seabed

One of the most publicized issues at the Law of the Sea conference has been the mining of deep seabed manganese nodules.

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[42]The Marine Pollution Prevention Law (#136 of 1970) contains no construction or insurance provisions and imposes a maximum fine of only 200,000 yen (about $670) for vessel discharge.

[43]The U.S. proposal (A/AC.138/SC III/L.40 of July 18, 1973) distinguishes between flag state (state of registry), coastal state, and port state duties and responsibilities. Although the coastal state can take emergency measures to safeguard its shores, under normal conditions, a complaint is to be filed and the action delayed until the vessel reaches its next port of call.

It already has suggested that the prospect of nodule exploitation was partly responsible for the 1970 declaration that:

> The Seabed and Ocean Floor, and the subsoil thereof, beyond the limits of national jurisdiction . . ., as well as the resources of the area, are the common heritage of mankind.[44]

Consequently, a number of alternatives were proposed for an international regime to ensure that the proceeds from seabed operations will be adequately shared within the international community.[45] The debates over this body have been long and contentious, with no sign of resolution as of the end of the Caracas session. Their content is beyond the scope of this inquiry, but whatever form the seabed regime will take will mark another departure from the freedom of action on the high seas. Should no organization be created, operations conducted in its absence will be the subject of contention, and possibly even violence, for years to come.

Shipping

Not only the technology, but also the organization of international shipping has undergone great changes in the last few years. There are doubts (in early 1975) about the future course of world trade in general. Moreover, two historical

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[44]General Assembly Resolution 2799 (XXV) of December 17, 1970.

[45]These have ranged from a licensing body for private ventures to "The Enterprise"--a completely international organ for exploitation and revenue distribution.

maritime freedoms--of the choice of shippers and of navigation--have been subject to restrictions.

International shipping is organized into Liner, Tramp and Tanker trades. Liners ply regularly scheduled routes, incorporating the latest available technology, such as containers. They are regulated through about 360 "Conferences," which set freight rates, assign routes, and determine cargo shares among the vessels of the member shipping lines.[46] Tramps are unscheduled bottoms in search of cargoes of opportunity, often carrying bulk materials, such as coal, ore and cereals. Historically, their only regulation has been through international safety and sanitary conventions, and some port state limitations. Tankers carry a variety of liquids, from LNG to palm oil. They are divided into spot (short-term/single voyage) and long-term charter markets. For a number of reasons, the long-term prospects for each of these markets are cloudy.[47] This, in itself,

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[46]The history and economics of conferences in the British trades through 1970 are examined in Brian M. Deakin and T. Seward, Shipping Conferences (Cambridge: University Press, 1973).

[47]In addition to the political problems described in the next few pages, long-range shipping plans are hampered by the uncertain world economic outlook, and the general inflation. Higher fuel costs mostly have been passed on to consumers, but developed country vessels have the additional problem of spiralling wages, which cannot be completely offset by labor-saving technology. Tanker and liner operators both suffer in an inflation because they cannot guarantee long-term rates, which may be a condition of government subsidies or profitable charters. Particularly in the former trade, the availability of long-term charters has been a key to the structure of fleets

is not unusual--the shipping business always has been risky, and a gloomy picture in one year often has been replaced by a bright one in the next.[48] However, the political climate in which international shipping operates has been radically altered since the 1950s, and particularly since the late 1960s.

The first significant change was the development of flags of convenience, dating almost entirely from 1949 when Liberia opened its registry to foreign ships.[49] By 1973, nearly 31 percent of the world's deadweight tonnage sailed under Liberian or Panamanian colors. Aside from the limited ties on the Effective U.S. Control (EUSC) fleet, these vessels are free from the controls of their owner's governments. Although Lieutenant Emery

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world-wide, since the number of ships actually owned by the oil companies could be reduced accordingly. Additional problems of the moment include an over-supply of tankers because of (1) large building programs undertaken over the past several years, (2) the reduced demand for petroleum products at current prices and (3) the desire of producing states to shift refineries closer to the well head. This, in turn, has shifted some tanker bottoms to the tramp market, contributing to its slackness. Liners, however, are doing fairly well, at least in the short run. (Shipping and Trade News [Tōkyō], March 22, 1974; Nihon Keizai, May 2, 1974; NKIW, October 22, 1974.) Further uncertainty, particularly for tankers and bulk carriers, will be introduced by the re-opening of the Suez Canal.

[48]In 1970-71, for instance, the tanker market was depressed. It rebounded in 1972-73 to reach the highest points in history, and now is depressed again.

[49]See S. W. Emery, "The United States Effective Control Fleet," USNIP, XCVI (May 1970), pp. 158-177, and John D. Hayes, "The Sea, 1967-72," op. cit. (note 2-20), pp. 303-305. Foreign registry, however, was used as early as the 16th century when British merchants sailed under the Spanish flag to gain access to the West Indies.

concluded in 1968 that the EUSC ships, if requisitioned in an emergency, could meet the needs of the U.S. civilian economy,[50] more recent studies have questioned their availability at such times.[51] In any case, flags of convenience, together with intermodal (often international) transportation systems, and the dispersal of the insurance markets have greatly reduced the feasibility of, or indeed the justification for, sole reliance on national assets for international commerce. In the words of a high-ranking U.S. Maritime Administration official.

> . . . Trading centers now are connected by a complicated network of common carrier merchant fleets, flying the flags of many nations, that provide regular and reliable service . . . . it is difficult to conceive of goods not moving across the North Atlantic due to the lack of shipping under any particular flag.[52]

This declining perception of the utility of national merchant marines, however, definitely has not applied in the Third World. Shipping issues were raised at the First UN Conference on Trade and Development (UNCTAD) in 1964, and have grown in importance ever since.[53] Developing country demands

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[50]Emery, op. cit., p. 175. EUSC ships are registered under foreign flags, but their American owners are obligated to make them available for U.S. needs in times of crisis. One problem, of course, is finding the ships in a port where U.S. jurisdiction applies.

[51]Kasputys, op. cit., p. 145.

[52]Ibid., p. 136.

[53]See UNCTAD, Review of International Trade and Development 1969 (TDB. 257, Rev. 1), Chapter V.

for a larger share of maritime commerce are not without justification, for, as the following table illustrates, their share in World trade has deteriorated:

Table 3-3

COMPOSITION OF WORLD TRADE

	Percentage Share				Compound Annual Growth Rate of Exports 1960-1970
	Exports		Imports		
	1960	1970	1960	1970	
World	100.0	100.0	100.0	100.0	9.3
Developing Countries	21.3	17.1	23.7	18.5	7.1
Centrally Planned Economies	11.8	10.6	11.9	10.5	8.2
Developed Countries	66.9	72.3	64.4	71.0	10.2

Source: OECD, Policy Perspectives For International Trade and Economic Relations (Paris: OECD, 1972), p. 140.

Accordingly, two conferences were held under UN auspices (hereafter Liner Conferences)[54] in 1973 and '74. From them emerged a "Declaration of Principles," which was signed in April 1974. Some claimed that this destroyed the principle of the

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[54]Note that the UN meetings about the liner conferences are, themselves, called Liner Conferences. To minimize confusion, the meetings will be capitalized, and the organizations referred to as freight or shipping conferences.

freedom of shipping.[55] In reality, of course, the freight conferences themselves, tied aid provisions, and a host of other devices had stifled free competition for years.

The declaration covered three principal areas: Cargo sharing, freight rates, and dispute settlements.

(1) Cargo sharing. Cargoes should be shared equally between importers and exporters. If parties of third countries are involved, 20 percent of the cargoes may be carried in ships not of the exporting or importing country, with 40 percent each carried by ships of the trading partners. This is the so-called 40-40-20 formula.[56] (Obviously, if one party does not have the shipping capacity to carry its 40 percent, someone else can make up the difference.)

(2) An obligatory 150-day advance notice before conferences can raise freight rates.[57]

(3) Compulsory international mediation of disputes between shippers and the conferences, with limited participation of governments concerned.[58]

Developing countries also demanded that trampers, and

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[55]See, for instance, the Kyodo News dispatch from Geneva in Mainichi Daily News, April 9, 1974.

[56]"Convention On a Code of Conduct for Liner Conferences" (Mimeo), Part I, Chapter II, Article 2, paragraphs 10-13.

[57]Ibid., Article 49.

[58]Ibid., Part II, Chapter VI, Article 6.

non-conference vessels be totally excluded from trade, but this was not accepted. A number of them already have enacted discriminatory legislation forcing the use of national ships or requiring foreign ships work through the agents of national lines.[59]

It is not clear how much advantage the developing countries will be able to take of their newly-legitimized cause. National shipping lines in the Third World have been notoriously inefficient and unprofitable. In times of increasing containerization, their reliance on relatively unsophisticated general cargo ships is not likely to improve their position.[60]

Furthermore, the developed maritime states have begun to take countermeasures. Japan is considering a "Foreign Ships Control Law,"[61] and the U.S. and several European states have legislation pending. More important than these national responses, however, is the International Council of Containership Operators (ICCO). Formed in 1972, the group still is informal, but there are signs that it will grow more powerful. The expansion of, and projections for containerized trade have been noted in the previous chapter. The lack of growth of ICCO thus

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[59]See details of the Venezuelan law in Nihon Keizai, April 16, 1974.

[60]See R. O. Gross, Studies in Maritime Economics (Cambridge: University Press, 1968), Chapter 3 for a consideration of the balance of payments issues in merchant marine expansion.

[61]Nihon Keizai, April 16, 1974.

far is due mostly to European resistance to U.S. government requirements that its talks be reported.[62] But competition among containership operators and the current state of maritime trade in general have become sufficiently restrictive that the European shipowners now appear ready to proceed with ICCO even if the U.S. Government listens in.[63]

The likely result of such a drive would be to concentrate high value trade between major ports in ICCO hands, relegating conventional vessels to the less profitable feeder runs between non-container ports and the containerization centers. This would force developing countries to pool their resources and buy containerships, cooperate in regional arrangements to handle the feeder services for the container ports (i.e. an ASEAN merchant marine), or become flags of convenience. There is, of course, an option open to a wealthy few to take advantage of the high wage rates and other costs on developed country ships to build up their own merchant marines.[64] But the concept of a national flag carrier for every flag is not economically viable, whatever

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[62]Gross, op. cit., Chapt. 2, has examined the impact of U.S. anti-monopoly laws on foreign shipowners.

[63]Far Eastern Economic Review (FEER), April 22, 1974, pp. 45-46.

[64]Several of the Persian Gulf States, for instance, are building tanker fleets.

declarations of principle may be adopted.[65]

In the face of this, Third World countries may either opt for the cooperative ventures noted above, or seek the regulation of shipping on a global basis, rather as utilities currently are regulated nationally. They may, of course, continue to press for national solutions, but this will not lead most of them very far. On the other hand, it might be profitable for the maritime states to encourage the development of the merchant marines of strategic coastal states in order to give them enough of a stake in the freedom of navigation to keep them from disrupting it.

Conclusion

If anything, the political demands for control over ocean areas have outstripped the technological imperatives of the previous chapter. Early prospects for enlightened internationalism have been replaced by successively more self-interested unilateral claims. Although some of these may be primarily negotiating positions, the potential for disputes over marine jurisdiction has been increased.

The disparity in the willingness of developing and developed countries to use force may be only a temporary phenomenon. It can equally be argued, however, that perceptions

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[65]See Olav Knudsen, The Politics of International Shipping (London: Lexington Books, 1973).

of national interest in coastal waters almost always will be more intense and easily justifiable than those far offshore. This, coupled with expanded national jurisdiction is likely to subject merchantmen to a variety of regimes in the course of their voyages. Some of these, certainly, will be more restrictive and disorderly than that of the high seas which we have come to be used to.

Chapter Four

THE OCEAN SETTING 1975-85

Several distinguished authors[1] recently have examined the future uses of military force in support of diplomacy and as a reserve ". . . to which the public will turn in moments of crisis."[2] Aside from the general danger that the most serious crises in the modern world may be so complex and subtle that the public will not realize what is happening until it is too late (momentary policies, environment modification by industrial usage, etc.), there are signs which point to increasing disorder at sea over the next few years. Although most of the incidents are likely to be limited in scope and violence, their nature may be such as to undermine the usefulness of naval forces in diplomacy vis a vis coastal states.[3] The indications of this

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[1]See, among others, Stanley Hoffmann, Laurence Martin, and Ian Smart in Force in Modern Societies: Its Place in International Politics, Adelphi Paper 102 (London: IISS, 1973), and Samuel P. Huntington, "After Containment: The Function of the Military Establishment," The Annals, Vol. 406 (March 1973), pp. 1-16.

[2]Martin's phrase, in "The Utility of Military Force," Adelphi 102, op. cit., p. 21.

[3]Somewhat paradoxically, however, this may have little effect on the role of warships in U.S.-Soviet negotiations. See below, p. 148.

stem from the accumulated impacts of the changes which have been considered separately in the previous chapters.

Signs of Disorder

The Changing Character of the Oceans

The first sign is a fundamental change in the nature of thinking about the oceans themselves--literally a blurring of the distinction between the sea and the land. Its basis lies in four factors, three technological and one political. They are:

(1) The ability to project power into a rival's heartland from land bases. As noted in Chapter One, the advent of intercontinental weapons means that the expansion of a land power into the maritime dimension now poses only an incremental threat to the security of a maritime state. A strong Soviet or Chinese navy may bring great flexibility to its owner in dealing with the U.S. or Japan, but it does not imply the same life-or-death challenge as the fleets of Europe once did for England.[4]

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[4]It has been suggested that the sea power-land power schism was the unresolvable dilemma of the European balance of power. For reasons of her own security, England (and later the United States) could not tolerate the maritime expansion of any state with a large standing army. For a land power to achieve true great power status, it was necessary for her to acquire some of the wealth from overseas trade and colonies. This, plus the utility of seapower in attracting allies, led to maritime expansion by aspiring continental states, thus threatening Britain. Furthermore, in the process of acquiring the strength necessary for even a try at global leadership, France, and later Germany, came to pose a direct and immediate menace in Europe itself. This provided a succession of willing allies which London wielded into coalitions. In turn these spurred attempts

(2) The development of inter-modal transportation systems. Land-bridges, door-to-door freight rates and the standardization brought by containers are in keeping with commercial trends towards multi-nationalization and the elimination of trade barriers, be they nationalistic or geographic. The political implications of these changes are only beginning to be felt. Even in the military, after years of partisan squabbling, there is growing recognition that sealift and airlift offer complementary rather than competitive solutions to logistics problems.

(3) The current state of ocean development technology. The increased value of marine resources has changed the image of the seas from one of a neutral medium of communication and commerce to one in which portions of ocean space may be seen as major additions to the national resource base. The future development of floating nuclear power plants, offshore industrial sites, airports and perhaps even cities will accentuate this image. Failure to agree on an international regime for the deep seabed would only expand the area open for division, not change its basic nature.

(4) The expanded impact of near-shore marine issues on domestic politics. Whatever the outcome at Geneva, Caracas, or wherever future Law of the Sea Conferences may be held, the

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by the land power to avoid encirclement through accelerated naval development. In whatever sequence the cycle proceeded, the net effect was to preclude the co-existence of maritime and continental powers.

combination of shortages, pollution and overcrowding will focus even more attention on the adjacent seas as safety valves for pressing national problems. Infringements on these areas will be resisted accordingly. Also of interest is the tendency to diplomatically link maritime activities with otherwise remote events ashore. Thus the Cod War became tied to Iceland's membership in NATO, while the blockade of Bab-el-Mandeb was maintained until some relief was arranged for the Egyptian Third Army encircled east of the Suez Canal.

The net result of these changes will be to reduce the apparent importance of distant-water maritime activities--commercial or military--while highlighting that of the coastal region. Distant-water interests certainly will continue, but their bargaining power will be diminished when they conflict with coastal ones, either domestic or foreign. Moreover, near-shore disputes probably will continue to be more visible and sensitive in developing countries than in industrialized ones, if only because of the fewer issues competing for the public's attention.

Asymmetrical Acceptabilities of Force

The second indicator is the oft-noted asymmetry in the acceptability of force between developed and developing states. The U.S., Britain and France showed a surprisingly consistent willingness to commit naval forces in support of major interests between the end of World War II and 1967, particularly if

strategic waterways were involved.[5] Nevertheless, one wonders if the British concessions in the Cod War, and the U.S. restraint in the South American tuna boat disputes may not be more typical of future responses than the attack on Suez or the Gulf of Tonkin reprisals. Even leaving aside the Pueblo and EC-121 incidents (where American options were limited by over-commitment in IndoChina and the decision to recover the Pueblo crew) and the attack on USS Liberty (which might have been differently received had it been made by an Arab state), the trend since the late 1960s has been toward Great Power forebearance. Hence there has been little response to such heretofore unacceptable acts as the 1973 Libyan attack on a U.S. EC-130 in the Mediterranean, or the Cuban seizure of two Miami-based Panamanian cargo ships in December 1971. So long as these limitations on the use of force remain political, they also are reversible,[6] but it may become

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[5]Mediterranean (U.S.), 1946; Corfu Channel (Britain), 1946; Taiwan Straits (U.S.), 1950; Gulf of Aqaba (Britain), 1951; Suez (Britain), 1951-52; Suez (France, Britain), 1956; Straits of Tiran (U.S.), 1957; Makassar and Lombok Straits (U.S.), 1958; Lebanon (U.S.), 1958; Quemoy (U.S.), 1958; Kuwait (Britain), 1961; Bizerte (France), 1961; Cuba (U.S.), 1962; Tanganyika (Britain), 1964; Gulf of Tonkin (U.S.), 1964; Dominican Republic (U.S.), 1964; Straits of Tiran (Britain, U.S.), 1967; Aden (Britain), 1967. Data from Cable, op. cit. (note 1-5), pp. 206-229. This list is not complete, but it indicates a certain consistency of behavior. See also the list of 73 "Wars and Near Wars" in which U.S. naval forces were involved (18 of them [deleted]) in CVAN-70 Hearings, op. cit. (note 1-4), pp. 163-165.

[6]Luttwak, op. cit. (note I-5), has suggested that the key to this moderation is detente, and that, should one superpower actually use force unilaterally it not only would invalidate the principle of asymmetrical acceptability, but also the structure

more and more difficult as precedents of coastal state authority accumulate.

Current Weapons Technology

The net effect of the sophisticated weapons now finding their way into coastal state hands will be to increase their freedom of action at the expense of the maritime powers. This latitude vanishes, of course, should the latter choose to employ all the means at their disposal, but at lower levels of conflict, the new equipments can reduce some of the distant water navy's advantages in training and maintenance. Moreover, the simple knowledge of their possession may lead to an over-rating of the developing country's power, and thus dissuade attempts to test it.[7]

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which supports it. Whether or not an American military intervention in the Middle East would destroy detente is not clear, but it certainly would re-establish the credibility of the use of force by Western states (assuming, of course, that it was successful).

[7]The Persian Gulf States may be a current example. Although it has been argued that homing weapons reduce the level of operator proficiency needed to pose a serious threat, there must be some skill there in the first place. A South American nation with years of experience in propeller or elderly jet aircraft could upgrade its capability almost immediately upon receipt of some of the ordnance discussed in Chapter One. Saudi Arabia and Kuwait, on the other hand, may buy the same, or better, weapons and fit them on superior aircraft. In time this will produce a much more credible force, but not until the pilots and mechanics are trained to keep the launch platforms flying. Given the quantum jump in technology involved, this may be several years, unless mercenaries or "advisors" are brought in.

Diminished Freedom of the Seas

Finally, there is the erosion of the foundation of the freedom of the seas, closely related to the points above and discussed at length in Chapter Three.

The Use of Force at Sea

Prototypes of the most likely kinds of future maritime disputes already have taken place. Among those which may be expected are:

(a) Continued conflicts over fishing. Shooting has been underway since the Spring of 1974 in the Gulf of Thailand,[8] not to mention the dozens of other controversies from Iceland to New Zealand.

(b) Fights over ocean resource boundaries--notably those involving petroleum. Not counting the PRC's claim to most of the East Asian continental shelf, there are at least seven sea-bed boundary disputes in that part of the world (Indonesia-Vietnam, Vietnam-Malaysia, Thailand-Cambodia, Cambodia-Vietnam, Japan-Korea, Japan-Taiwan, and the Philippine concessions west

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[8]South Vietnam extended its territorial sea to 62 miles on April 5, 1974, thus touching off a series of incidents which led to the killing of a Thai fishing boat captain. See The Nation (Bangkok), April 26, 1974, The World (Bangkok), May 9, 1974, and FEER, May 13, 1974, p. 13. At one point the Thai Navy was reportedly developing a contingency plan to protect the fishermen. (The Nation, May 10, 1974).

of Palawan passage around the Spratly Islands).[9] The Aegean and Norwegian Seas also are sensitive.

(c) Additional harrassment of ocean commercial activities. The reported terrorist threat to North Sea oil rigs in 1974 may only be a beginning.[10] Another prospect, perhaps more serious in the long run, is that of interference with merchantmen. In the Spring of 1974 a lumber ship nearly was hijacked by rebels in the southern Philippines. Naval responses to such actions may be limited by the fact that politically-motivated seizures may not be dealt with as piracy.[11] Between July 1st, 1964 and June 1st,

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[9]Each issue of Petroleum News Southeast Asia (hereafter PNSEA), has a map of the Southeast Asian region showing national claims, company leases, and existing wells. For more detail, including Northeast Asia, Oceania and the Indian Ocean, see the annual "Map and Contract Issue," most recently IV (#10, 1974).

[10]In 1970, R. Ōta, a Japanese radical theoretician wrote a piece entitled "Modern Systematic Methods of Destruction." In it he proposed to:

> Cut off crude oil transportation; hijack or destroy J.A.L. (Japan Air Lines) Middle East routes and tankers carrying oil from the Gulf of Persia in order for Japan to change her policy towards Israel; attack Singapore, make it the starting point in [sic] armed revolution in Tokyo.

(Quoted in Patrick Low, "New Dimension to the Oil Crisis," PNSEA, [February 1974], p. 30.) These words acquired new meaning late in 1973, when a Palestinian terrorist group attacked the Shell Pulau Bukom Refinery in Singapore. Although it did little damage, and apparently was directed against supplies to Vietnam rather than Japan, it was, in Low's words, "The first attempt by a multinational revolutionary front to destroy a major installation of an international oil company."

[11]This was a factor limiting U.S. and British assistance during the 1961 seizure of the Portuguese liner Santa Maria.

1965, there were 42 reported piracies in the Straits of Malacca. Fourteen of these were not attributed to Indonesian units operating under Konfrontasi.[12] The spectre of coastal states extracting payments in the guise of tolls for the maintenance of navigation aids or pollution funds has been raised in the Law of the Sea negotiations.[13] Even guerrilla submarine attacks, often discussed but not seen since the 1930s, were suggested by the reported Libyan attempt to use an Egyptian submarine to sink the British passenger liner Queen Elizabeth II enroute to Israel in February 1973.[14]

Professor Martin has suggested that disputes at sea will be self-limiting on four accounts:[15](1) for most states, ocean interests are important, but not vital,[16] (2) both sides will be trying to win legal acceptance of, or at least political support for, their position, (3) warships can be effective

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[12]Malaysia, Ministry of External Affairs, Indonesian Aggression Against Malaysia, Volume II (Kuala Lumpur, June 1965), pp. 18-24.

[13]See above, p. 122.

[14]Reported by Egyptian President Anwar Sadat in a BBC interview, July 16, 1974. Sadat did not name Libya directly, but later accounts did.

[15]Laurence Martin, The Role of Force in the Ocean, paper presented to the SAIS Conference on "Conflict and Order in Ocean Relations," October 22, 1974, pp. 10-12.

[16]Maritime commerce certainly is vital to most trading states, but the disputes in question probably will not cut off such services, though they may increase their costs.

without actually opening fire and without violating their opponent's sovereignty and (4) naval force, once applied, can be readily tailored to maintain a balance between challenge and response. These points are well taken, to the extent that ocean issue conflicts, by themselves, are not likely to escalate to another Vietnam War, or a super-power confrontation. However, some states are likely to be more self-limiting than others, and it may be that maritime problems could provide pretexts or aggravate other grievances to create potentially expansive situations. Moreover, a series of low-level disorders in which the imbalance of usable force was clearly displayed eventually could undermine the utility of great power naval forces in diplomatic roles.

Case studies of the mechanisms by which gunboat diplomacy actually affects decision-making in a developing coastal state are rare. During the summer of 1974, however, a series of interviews were conducted in East Asia concerning local perceptions of seapower.[17] The net result was the not-very-surpris-

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[17] 93 in Taiwan, the Philippines, Thailand, Malaysia, Singapore and Indonesia, and 38 more in Australia, New Zealand and Hawaii between May 6 and July 5, 1974. Although the content of individual interviews varied, the overall purpose of the study was to examine: (1) the prospects for Japanese contributions to East Asian security, (2) the local perceptions of regional and distant-water navies, and (3) the ocean development programs of the countries concerned. Obviously, an average of 15 interviews in each country is statistically tenuous and may even be misleading. But, in the absence of alternative written sources, it was useful as a first approximation. In any case, the responses to the first two questions in different countries were surprisingly consistent. They will be referred to again later.

ing conclusion that, while the force levels of adjacent or nearby powers are watched with care, the influence of foreign warships stems at least as much from memories of past actions as from a detailed analysis of their current capabilities and limitations.

Although the presence of great power warships off one's coast is unlikely to lead to a bombardment or invasion, there is some justification for coastal state fears. After all, since 1956 the U.S. actually has intervened[18] with its naval and marine forces seven times.[19] Britain has done so five times,[20] France twice,[21] and the People's Republic of China once[22] in the same period. Note, however, that with the exception of the comic-opera Anguila operation, there has been no Western naval intervention for nearly ten years. (This assumes that the 1972 mining of North Vietnamese waters and the bombardment of her coasts were a continuation of an intervention begun much earlier.)

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[18]Here considered to be the firing of shots, imposition of a blockade, or the landing of troops. Not included are offshore patrols or the evacuation of nationals.

[19]Alexandria and other mid-East posts (1956), Lebanon (1958), Thailand (1962), Cuba (1962), North Vietnam (1964), South Vietnam (1965), the Dominican Republic (1965).

[20]Suez (1956), Kuwait (1961), Tanganyika (1964), Beira (1965-66), Anguila (1969).

[21]Suez (1956), Tunisia (1961). In addition, during the Algerian War, France stopped and searched the merchant ships of at least ten countries.

[22]The Paracels (1974).

Given the destabilizing forces in the world today, it is possible to imagine that some future incident will involve a major power warship and a coastal state. If the warship is fired upon, the maritime power has two choices--to respond with force, or to respond diplomatically. At present, it is unlikely that Western electorates will support military campaigns in the Third World, particularly if they promise to be costly. In any case, there will be many who will argue (with some justification) that U.S., British or French interests are not sufficiently threatened by any one incident to justify a forcible response. At the same time, however, diplomatic redress, however complete, will be much less dramatic (and hence less impressive) than the original challenge. If the above comments on the nature of warships' influence are correct, then it would not take many such incidents to cast doubt on the credibility of any use of force by Western naval powers, and hence on the diplomatic usefulness of their fleets.[23]

One analysis might lead to the conclusion that only three choices are open to the maritime state. A relatively small amount of force in response to early challenges, a larger amount later to re-establish it as a viable policy option, or acceptance of a

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[23]This discussion mostly has involved the ability of warships to directly influence a coastal state on a particular issue--what Luttwak has called "active suasion." Presumably this also would effect the more general case where the mere presence of one's forces in a region equates to influence ("latent suasion"), but the linkage is less clear.

radical transformation of the marine environment. In point of fact, there may be other alternatives as well. For instance, if a particular state, organization of states, or non-national group frequently and consistently acts in ways unacceptable to the majority of interested parties, it will become easier to respond more firmly as time goes on. The diminished willingness of governments to agree to hijackers' or terrorists' demands is a case in point.[24]

Perhaps some radical transformation is inevitable. Although declarations of ocean areas as zones of peace, neutrality, etc. are unlikely to have much effect, extended jurisdiction eventually may lead to the exclusion of non-littoral power warships from semi-enclosed seas,[25] either by convention or by physical control of access points. Well before such situations develop, the superpowers, at least, will begin to nurture middle power surrogates within the region itself. This is not a new approach. The British devolution of power to the United States in the Caribbean and Japan in the Far East foreshadowed the consolidation of the

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[24]Admittedly there is little evidence for coordinated, hardened responses by the international community. Within many individual states, however, more stringent security measures and the use of force against skyjackers became more acceptable as the number of incidents mounted. See "Aerial Piracy" in Strategic Survey 1973 (London: IISS, 1974), pp. 82-83.

[25]Such as the Mediterranean, Baltic or the Persian Gulf. The Black Sea already is controlled by the Montreux Convention. See Lewis M. Alexander, "Special Circumstances: Semi-enclosed Seas," in Gamble and Pontecorvo, op. cit. (note 2-3), pp. 201-216.

Royal Navy in European waters in 1904.[26] More recently, Iran's development as a major force in the Persian Gulf and Northwest Indian Ocean has made her a plausible candidate for such a role since Britain's withdrawal east of Suez. Suggestions that Japan should be groomed for a similar part in the Western Pacific will be treated at length in later chapters.

Whether or not one wishes to entrust the primary responsibility for regional peacekeeping to a surrogate must hinge on factors beyond the scope of this study. Even if one does not, such allies still can be useful. British fleet movements, for instance, were of considerable importance to the United States during both the Lebanon operation of 1958 and the 1967 Middle East war.[27] Although a comparable degree of trust, coordination and capability will be hard to find elsewhere, a regional, middle power navy dedicated to keeping a certain amount of order could free one's own diminishing assets for higher priority tasks.

It is recognized that the price that might have to be paid for such stability would be infringements on maritime activities by the middle power itself--perhaps Iranian tolls on shipping entering the Straits of Hormuz, or an Indian Oceanwise pollution zone. Still, such penalties might be preferable to turmoil, and can be partly countered by ensuring that the strategic states in

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[26]See Marder, op. cit. (note 1-2), pp. 427-450.

[27]See Howe, op. cit. (note I-5), passim.

question have enough of a stake in the freedom of the seas (possibly by encouraging them to build large merchant fleets along with their navies) that totally unreasonable demands could be met with counter pressures. Such leverage, of course, also could be exerted through non-maritime issues.

Should the seas be divided, merchant shipping may find adequate freedom under flags of convenience and multi-national control. This is not unreasonable, commercial aircraft have operated across sovereign airspace since their inception. Already some ocean policy studies are examining parallels between air law and an emerging law of the sea.

Despite these factors, however, visions of the imminent relegation of aircraft carriers to the protection of oil rigs, floating cities and fisheries zones are premature. For all the restrictions on their activities, naval vessels still are a useful (if expensive) way for the superpowers to signal to each other. Although other governments may not be cowed in the way they once might have been, neither would a major shift in deployments go unnoticed. Moreover, in those situations where critical interests truly are threatened, the presence of a few symbolic ships can be significant. In the words of one commentator:

> When naval forces are introduced in order to affirm the commitment of national power in all its dimensions, their actual tactical capabilities do not delimit their political effectiveness.[28]

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[28]Luttwak, op. cit., p. 52.

Even the restriction of movement will come slowly, for there will continue to be enough insecure states to practically guarantee bi-lateral access agreements (with which the Air Force has always operated) under the most pessimistic Law of the Sea Conference outcome.

Nevertheless, trends do seem to point to an eventual demise of the freedom of naval mobility, with consequences well beyond unemployment for those skilled in such arts. This is not unprecedented. The spread of civilization to the European steppes impeded the movements of the Cossacks and Tartars just as surely as ocean economic activities and extended national jurisdictions (and the ability to enforce them) will limit the military mariner.

The consequences of this may not be entirely bad. Regional hegemonies may arise in some areas, but cooperative solutions may be found in others. If fisheries and pollution could be managed on a regional basis, it certainly would be an improvement over current practices. The superpowers also may be discouraged from intervening in disputes which are not really in their national interests. (For those that are, it will be many years before the sanctity of ocean boundaries will be a binding constraint.)

In any case, it is against this changing background that Japan must examine her ocean programs, even to the point of relinquishing some of the traditional concepts which have served her so well to date.

PART II

THE SETTING OF JAPAN'S SEAPOWER: PURPOSES, PROBLEMS AND PROSPECTS

Chapter Five

JAPANESE INTERESTS AND STRATEGIC THINKING 1974

It always is risky, if not presumptious, to comment on such a value-laden and variable subject as the national interest.[1] This is particularly true for an American writing of a land as foreign to his own as Japan. Nevertheless, certain elements of Japanese national interests are relatively fixed by geography, population and natural resources. Others, involving industrial structures, dietary habits, the cultural heritage, etc., may be variable, but will not change very quickly. Those interests most volatile and difficult to assess result from the interplay of domestic pressure groups or from the need to satisfy some national cultural or psychological demand. Typically, they really are strategies for the protection of more permanent concerns. For instance, one way of preserving the social and political structure would be through the containment of Communism.

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[1] John M. Collins, in his Grand Strategy (Annapolis: USNI, 1973), states that "National Survival is the only abiding interest." (p. 3). He does, however, define national interests as:

> A highly generalized concept of elements that constitute a state's compelling needs, including self-preservation, independence, national integrity, military security, and economic well-being. (p. 273)

He further distinguishes them as being of long, short or medium term.

Alternatives could be neutrality or an anti-imperialist stance. Another example would be to support domestic fisheries (and fishermen) by declaring a 200 mile economic zone (instead of a more internationalist approach, or by increasing the competitiveness of one's own fleets).

With these caveats in mind, some of the interests which currently are of major importance to Japan are outlined below.[2] Obviously all are not related to seapower, and some choices may be open to dispute. Still, a listing of this sort may provide a background for later chapters and clarify the author's biases and shortcomings.

A. The Physical Security of the Japanese People (fixed)

1. Protection of the home islands (fixed)

(a) Diplomatic: avoidance of war/isolation (interest fixed, arrangements variable)

(1) Ties with U.S. and West
(2) Improved relations with PRC
(3) Improved relations with USSR
(4) Shedding of neo-imperialist image in Third World (to reduce terrorist targets)
(5) Membership in international organizations

(b) Military

(1) Maintenance or modification of Japan-U.S. Security Treaty
(2) Other arrangements
(3) Level of Self-Defense Forces' unilateral capabilities
(4) Nuclear/non-nuclear stance

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[2]Insofar as possible, the issues have been approached from the Japanese point of view. All these points have been discussed by Japanese officials or commentators over the last two years.

2. Disaster relief program (fixed)

   (a) Domestic relief capability
   (b) Reliance on international agencies

B. Maintenance of Economic Well-Being (basically fixed, but definitions of "well-being" vary)

1. International measures

   (a) Protection against resources nationalism and cartelization (including food)

      (1) Diversification of suppliers
      (2) Flexible diplomacy
      (3) Provisions to transport raw materials and finished goods
      (4) Development of effective countermeasures if possible, and a willingness to use them if necessary

   (b) Maintenance of existing markets/opening of new ones

      (1) Joint ventures
      (2) Measures to increase competitiveness
      (3) Improvements of the image of Japanese businessmen

   (c) Avoidance of isolation

      (1) Minimization of trade barriers
      (2) Formation of alliances, resource-sharing programs, improved financial associations
      (3) Promotion of interdependence

2. Domestic measures

   (a) Inflation/recession countermeasures
   (b) Appropriate restructuring of the economic structure
   (c) Pollution control
   (d) Increased stockpiles and food buffers
   (e) Improvement of the social capital structure

C. Preservation of Political Autonomy/Independence (fixed)

1. Closely related to A. and B. above

2. In Japan's case avoidance of isolation is especially important

D. Contributions to the Development of the International System (variable)

   1. Demonstration effect of Japan as an economic power without military power

   2. Projects for the integration of developing countries into the international system

   3. Projects for promoting interdependence

E. Maintenance of Psychological Well-Being (interest fixed, needs variable)

   1. Preservation of social cohesion

   2. Determination of Japan's world role

      (a) Must be greater than Japan, Inc.

   3. Search for international acceptance

This list, of course, is not all-inclusive, but it is indicative of the breadth of the problems which Japan faces today. There is a general consensus on the interests themselves, but much less of one on the strategies for protecting them. The balance of this chapter briefly will summarize the thinking and debates on these issues as of late 1974.

The Physical Security of the Japanese People

The Setting

The dominant fact of Japanese life is overcrowding. In early 1975, more than 110 million people lived on the four main islands, an area slightly smaller than California. Although this already creates one of the highest population densities in the

world,[3] the problem is compounded by unequal distribution. In 1970, 51.4% of the nation lived in the so-called "Tōkaidō Megalopolis" (along the eastern seaboard from Tōkyō to Kōbe), which accounts for only 18.8% of the land area.[4] Thus the region around Tōkyō supports over 5300 persons per square kilometer while the Northern Island of Hokkaidō has only 66. (Lest this seem too sparse, however, it should be noted that Hokkaidō is more crowded than 40 of the 50 United States.) Although the population growth rate has been stabilized at about 1 percent, this still means an increase of over a million persons per year.

Threats to Japan's physical security may be either natural or man-made. The former are quite important psychologically, although their hazards have been reduced in recent times. For instance, the life and property damage from earthquakes in an average year is fairly light, but the threat of another major disaster like the one in 1923 is not far from anyone's mind. An average of six or seven typhoons strike the country each year, beginning in Okinawa about August, and gradually moving northward through October. Although improved weather forecasts and

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[3] 287 people/km^2 (1972), vs 22/km^2 for the U.S. (A similar U.S. density would equate to a population of over 2,600 million.) On a world-wide basis, Japan's population density is between that of Belgium (318) and West Germany (248). Data from Sorifu Tōkei Kyoku (Statistics Bureau, Prime Minister's Office), Kokusai Tōkei Yoran (International Statistics Handbook), Tōkyō: March 1974.

[4] Statistics Bureau, Prime Minister's Office, Statistical Handbook of Japan 1971 (Tōkyō: June 1971), p. 20.

Figure 5-1

JAPAN IN ASIA

construction techniques have lessened the dangers from these storms, they cannot help but have a major impact on those in their paths. Some 60 volcanoes also are active, but these rarely pose problems.

By contrast, except for terrorism, which will be discussed later, few Japanese can envision a credible military threat to the homeland itself. An invasion of Japan would hardly be justified by someone else's need for living space or raw materials. She has few boundary or territorial disputes, although the search for ocean resources will add new ones and may intensify others. Except for limiting the Soviet navy's access to the Pacific, she does not stand in the way of any great power's line of advance. Japan's strategic value, on the other hand, lies in her industrial potential (which probably would be severely damaged in the fighting), her availability for U.S. bases in the Northeast Asia (which seems to be declining) or for a Soviet window on the Pacific, and the impact which her defection from the Western camp might have on the psychological balance of power. Even should an invasion succeed, it is argued, it would be difficult to ensure that the efforts of such a closely-knit people could be directed towards one's own ends. With the reduced tensions in the region resulting from detente and the American withdrawal from Vietnam, the direct threat from any of her neighbors appears to have diminished even farther.

It is possible, of course, for these warming trends to be

reversed, and to be reversed rapidly. Therefore, classical military doctrine holds that the capabilities of possible opponents, rather than their intentions, should be the guide to one's defenses. Most Japanese, however, do not subscribe to this thesis, on four grounds: (1) the nuclear threshold is such that much of the superpowers' capability is effectively unusable, (2) Japan is sufficiently important that she could count on foreign assistance if any great power deployed its forces against her, (3) even if she could not count on such help, her geographical situation is such that she could not defend herself against, or absorb, even a moderate nuclear attack,[5] (4) whatever the physical situation, the constitutional limitations and the domestic political realities absolutely preclude the development of military forces to compete with the superpowers.[6] Therefore, it becomes pointless to argue in terms of capabilities alone. At the same time, the consideration of intentions shifts the focus outside of the military plane. Indeed, it has been in the

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[5]Due to the concentration of cities and industrial areas (70% of the industry is located in 20% of the land area), it has been estimated that as few as eight megaton-range weapons could destroy virtually the entire productive capacity of the Tōkaidō region and Northern Kyūshū. Jack D. Salmon, "Japan as a Great Power: The Military Context and Policy Options," Japan Interpreter, VII (1972), pp. 396-408.

[6]This is separate from the issue of Japanese nuclearization itself. The domestic and international merits and demerits of a few nuclear weapons could be argued endlessly. Almost no one, however, considers that Japan could build a warfighting capability comparable to that of the U.S. or the Soviet Union.

realm of diplomacy and economics (which Tōkyō has managed to separate so skillfully) where Japan has pursued her primary quest for security.[7]

Diplomatic Security

(1) The United States.

At present, the United States is Japan's official guarantor, both through the "nuclear umbrella" and the conventional forces which might be activated under the Japan-U.S. Treaty of Mutual Cooperation and Security.[8] Although relations between the two countries in early 1975 were relatively tranquil,[9] there are several long-range problems which could cause frictions in the future.[10] Among these are: (1) U.S. bases in a Japan where land is increasingly scarce and where their use in support of Japan's interests (as opposed to America's) is seen to be more and more

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[7]See Okumiya Masatake, "Proposal for a Well-Balanced National Security," Shin Bōei Ronshū, March 1974. Translation in American Embassy, Tōkyō, Summary of Selected Japanese Magazines (hereafter Magazine Summary), June 1974. Also F. C. Langdon, Japan's Foreign Policy (Vancouver: University of British Columbia Press, 1973).

[8]Hereafter "Security Treaty."

[9]The column "Japan Currents" in Sekai, July 1974, suggests that this may be because both sides are avoiding a real dialogue in the hope of avoiding the exposure of differences.

[10]Shiratori Rei, "U.S.-Japan Relations Headed Toward Dangerous and Unstable Period," Economist, June 4, 1974. Translation in Magazine Summary, June 1974.

unlikely.[11] (2) Continued U.S. reminders that Japan should be grateful for the security it receives when the Japanese have begun to question the need for such protection.[12] (3) Intensified competition in a number of markets in which Japan recently has lost many of the competitive advantages which it held for so long.[13] (4) Competition for scarce world-wide resources.

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[11]This question frequently was raised during Vietnam, and in the debates over the homeporting of the U.S. aircraft carrier Midway at Yokosuka. It surfaced again during the summer of 1974 when U.S. ICBM warning radars were found to be located in Japan. American bases are permitted under Article VI of the Security Treaty, which states:

> For the purpose of contributing to the security of Japan and the maintenance of international peace and security in the Far East, the United States of America is granted the use by its land, air and naval forces of facilities and areas in Japan.

Taoka Shunji provides a number of cogent arguments for the abolition of the formal U.S. base structure in the interests of better overall relations. See "Japan's Strategic Situation and the U.S. Military Presence." (Copy provided by author. Publication forthcoming.) These were strengthened by the release of evidence from several sources during September and October 1974 which pointed to the presence of nuclear weapons aboard U.S. ships in Japanese ports.

[12]A frequently-heard criticism is that the nuclear umbrella really is a by-product of the U.S.-Soviet balance and thus would be equally effective whether or not Japan had formal security arrangements with the U.S. Royama Michio made this point in an interview on January 9, 1973. See also Shiratori, op. cit. There also is an interesting difference in perception in that many Japanese feel that it is the U.S. which should be grateful (for the base rights), rather than the other way around.

[13]In Southeast Asia, for one, U.S. firms recently have been making strong inroads. See the 3-part New York Times series, "The United States and South Asia," June 24-26, 1974. For a radical critique (and book review), which holds that the U.S. always has been dominant, see T. A. Bisson, "The American-Japanese 'Co-Prosperity Sphere,'" BCAS, VI (January-March 1974),

(5) The asymmetry between American and Japanese dependence on foreign suppliers, which might make Japan vulnerable to countermeasures for U.S. actions.[14] (6) Japanese reliance on the U.S. for a number of crucial commodities, such as food. Should the U.S. be unable to provide Japan with the materials it needs in times of shortage, serious ramifications are possible, as presaged by the 1973 soy bean embargo.[15]

Relations with the United States are likely to remain as the keystone of Japanese diplomacy. This certainly will be true so long as conservative governments are in power, and probably would be even for a coalition. Nevertheless, Tōkyō also will continue to seek greater independence from Washington.[16]

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pp. 52-64. A good summary of Japanese competitive problems was provided in Asahi Shimbun (hereafter Asahi), September 17, 1974, p. 9.

[14]Since before the oil embargo, Japan consistently has rejected U.S. proposals for agreements among oil consumers which might lead to confrontations with producing countries. Japan's contradictory allegiances are outlined in Mainichi's September 30, 1974 summary of Foreign Minister Kimura's U.S. visit.

[15]Although the September 21, 1974 communique between President Ford and Prime Minister Tanaka included a denial of U.S. intent to restrict the export of foodstuffs, the imposition of de-facto controls on grain shipments to the Soviet Union less than three weeks later was highly disturbing. Thus far, Japanese demand for U.S. cereals is not large enough to fall under the regulations, but the future is uncertain. See, inter alia, Sankei, October 11, 1974 (editorial).

[16]For instance, Eto Shinkichi and Miyoshi Osamu, "What is the Axis of Japanese Diplomacy?" Keizai Orai, December 1973. Translation in Magazine Summary, April 1974.

A Japanese Foreign Minister stated in September 1974 that:

> Japanese diplomacy, from now on, must be a diplomacy in which the centripetal force and the centrifugal force are balanced. "Centripetal force" means, in other words, efforts to make the U.S.-Japan cooperation policy line, which has been the axis of post-war Japanese diplomacy, still more solid. By "centrifugal force," I mean the steady establishment of friendly and good-will relations with countries with which our country did not have such close political ties so far.[17]

This trend has become stronger and more visible since the Nixon shocks of 1971, but it really began earlier as an offshoot of the economic recovery. It has been evidenced by the increasingly far-ranging trips of high government officials, from Peking to Moscow to Europe on the one hand, and to Latin America, the Middle East and Africa on the other.

All of these moves have been designed to increase Japan's flexibility. But they also are contingent on the continued relaxation of tensions in the Western Pacific. Eventually, Japan may achieve enough of a balance in her multi-lateral relations to safeguard an independent course even if the political climate in Northeast Asia worsened. For the time being, however, such a trend almost certainly would drive her back towards Washington.

(2) The Soviet Union

Relations with the Soviet Union are burdened with a long history of distrust and conflict, not to mention ideological differences and a territorial dispute. Although there are strong

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[17]Quoted in Mainichi, September 10, 1974, p. 2. Translation from Press Summary, September 19, 1974, p. 9.

anti-communist factions within the Japanese government, the ideological fervor of the Cold War has eased in Tōkyō, as elsewhere, in recent years. Moscow's principal offerings, besides a general reduction in tensions, are resources, fish, and the northern islands.[18] Siberian development projects provided the initial basis for Japanese commercial interest, but recent circumstances, especially the growing availability of Chinese oil, increasingly severe Soviet terms, and a lack of U.S. co-participation have reduced their attractiveness.[19] Fisheries disputes are an ongoing source of irritation for Tōkyō, since several thousand of her seamen have been seized since 1945 and a Soviet 200 mile economic zone is seen as a serious threat to the pelagic catch. The northern islands issue remains the stumbling block to a formal World War II peace treaty. Relations were normalized,

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[18] Habomai, Shikotan, Kunashiri and Etorofu, which the Soviets acquired at the end of World War II. Japan maintains (and the USSR agrees) that the former pair are related to Hokkaidō, rather than to the Soviet-owned Kuriles. The latter pair, it is claimed, belong to the Southern Kuriles, which are said to be a distinct island group. Moreover, since all of the islands were settled peacefully and belonged to Japan before she began her imperial expansion (a fact recognized by 19th century Russo-Japanese treaties), they are not covered by the Potsdam declaration. Moscow has offered to return the first two as part of a peace treaty, but holds that the others are not negotiable since war-related boundary issues cannot be re-opened. The Japanese arguments are given in the Foreign Ministry publication, The Northern Territorial Issue (Tōkyō, 1970).

[19] Tōkyō Shimbun, September 30, 1974, p. 3. A key factor was the Soviet decision to build a new track for the Trans-Siberian railway rather than a pipeline as originally discussed. The strategic implications of this choice, plus a reduction in the guaranteed amount from 40 to 25 million kiloliters, raised doubts not only in Tōkyō, but also in Washington and Peking.

however, by a joint agreement in 1956.

The Soviet Union has headed the list of "disliked countries" in Japanese opinion polls for years.[20] Nevertheless, both sides can profit from increased cooperation and it appears that this will be the governing factor in the near future. Such cooperation is possible under the correct, if lukewarm relations now prevailing. Some further warming may be expected, but the deep-seated anti-communism of most Japanese leaders, and their probable successors, will continue to discourage very close ties.

(3) The People's Republic of China

Despite more than 75 years of often violent hostility, Japan's basic relationship with China is much closer than with the Soviet Union. In addition to a long history of cultural borrowing, there still is some Japanese guilt about the wartime experiences. While it is recognized that the economic potential of the "China Market" will not be realized for years, the PRC recently has become a supplier of petroleum. Though initial shipments have been fairly small, the expansion potential and lack of strings have distracted attention from Siberian development.[21] In the next few years, China's importance as a determinant of Japan's course will grow. Specific predictions are

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[20]For instance, Sankei, September 17, 1964, p. 6. Part of the distrust stems from Moscow's attack on Japan in the last days of World War II in violation of a non-aggression pact, and her slowness in repatriating prisoners of war.

[21]Sankei, August 16, 1974, p. 9.

impossible, given the uncertainties of the post-Maoist period, but some alternatives and Japan's possible reactions to them will be offered in Chapter Seven.

(4) Taiwan and Korea

Taiwan and Korea are the other two areas of immediate concern to Japan's security. With the decline of East-West tensions, the likelihood that Japan will be drawn into a conflict over either area also has diminished. This probably is more true of Taiwan than of Korea. Once declared "important" to the security of Japan,[22] the ties between Tōkyō and Taipei have been cool since the former established diplomatic relations with Peking. The abortive 1974 negotiations over the Japan-China air route made matters even worse. This has not prevented the growth of economic links, but Japan now has little ideological reason to become directly involved in a conflict between the two Chinas.

Korea, on the other hand, remains of primary importance. Traditionally the "dagger pointed at the heart of Japan,"[23] there has been a history of mutual animosity at least since Hideyoshi's invasion of the peninsula at the end of the 16th century. Recent

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[22] Nixon-Satō communique, November 21, 1969.

[23] The two invasions by Kublai Khan in the 13th century were launched from Korea. Some reports even credit an attempted Chinese invasion in the 7th century. Fear of foreign possession of Korea played a particularly important role in Japanese foreign policy in the late 19th-early 20th centuries. Japan's perspective on Korea is similar to Britain's historical view of the Netherlands.

problems have included fishing disputes, sometimes involving violence, continental shelf boundary issues, and the Korean occupation of Takeshima, an island in the Sea of Japan. The 1969 Nixon-Satō communique affirmed that the security of South Korea (ROK) was "essential" to that of Japan, but the Kim Dae Jung kidnapping and the assassination attempt on President Park have brought relations between the two countries to a post-World War II low. In fact, a Japanese Foreign Minister recently made the highly controversial remark that the essential element for Japan now was "stability on the Korean Peninsula," rather than the ROK's security. At the same time he decried President Park's warnings of the threat from the North."[24] Whether or not Korean instability results from internal or external pressures, it is likely to be of more direct interest to Japan than almost any other single issue.

(5) Other States

Diplomatic relations with the rest of the world have varied in direct proportion to Japan's economic interest therein. Some measure of this interest may be indicated by Tables 5-1 through 5-3. Note the truly world-wide nature of her resource dependence, the importance of the North American and Southeast Asian markets, and the growing level of investment in Europe.

The economic basis of this interest has been well described

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[24] Yomiuri Shimbun (hereafter Yomiuri), October 10, 1974, p. 7.

Table 5-1

JAPANESE STRATEGIC REGIONS

FY 1972 RESOURCES SUPPLY

	% of Imports	% Dependency	% Total Demand
North America (11.5%)			
Soy Beans	91	96	88
Wheat	80	91	73
Lead Ore	71	76	54
Coal	54	57	31
Copper Ore	39	99	39
Forestry Products	23	51	12
Central and South America (6.7%)			
Sugar	44	89	39
Raw Cotton	36	100	36
Iron Ore	22	99	22
East and Southeast Asia (11.7%)			
Crude	13	99.8	13
Forestry Products	53	51	27
Bauxite	42	100	42
Copper Ore	40	99	40
Rubber	96	100	96
Africa (3.7%)			
West Asia and Middle East (40.9%)			
Crude Oil	85	99.8	85
Iron Ore	16	99	16
Oceania (16.7%)			
Wool	93	100	93
Nickel Ore	83	100	83
Bauxite	56	100	56
Iron Ore	42	99	43
Coal	35	57	20

Source: MITI

Table 5-2

JAPANESE STRATEGIC REGIONS

TRADE

a. Exports (percent of value)

	1960[1]	1970[2]	1973[3]	1980[4]	1985[4]
N. America	32.8	33.7	28.3	not available	not available
Central & S. America	4.4	6.1	7.5		
W. Europe	11.7	15.0	17.4		
Southeast Asia	23.3	25.4	24.2		
Africa	8.7	7.4	8.5		
W. Asia and Middle East	12.4	2.8	4.4		
Oceania	4.9	4.2	4.4		
Communist	1.8	5.4	5.3		
TOTAL ($x10^6)	4,055	19,318	36,930	43,419	61,039
% of GNP	9.4	9.5	9.2	9.6	9.9

b. Imports (percent of value)

	1960[1]	1970[2]	1973[3]	1980[4]	1985[4]
N. America	42.8	34.1	29.5	not available	not available
Central & S. America	3.2	7.2	5.1		
W. Europe	8.8	10.2	10.5		
East and Southeast Asia	14.0	16.0	20.8		
Africa	3.7	5.8	4.6		
W. Asia and Middle East	15.7	12.0	12.6		
Oceania	9.0	9.6	11.1		
Communist	2.8	4.7	6.0		
TOTAL ($x10^6)	4,491	18,881	38,314	39,879	57,046
% of GNP	10.4	9.3	9.6	8.8	9.2

Sources:

[1]MITI

[2]NKIW Industrial Review 74, p. 8

[3]MITI, International Trade White Paper 1974, Data Summary, pp. 18-19

[4]MITI. Computed in real terms in Yen; converted at $1 = ¥ 300

Table 5-3

JAPANESE STRATEGIC REGIONS

INVESTMENT

a. Cumulative Direct Investments by Japanese Firms (percent)

	1968	1970	1972	1980	1985
N. America	29.5	25.5	22.9	not available	not available
Central and S. America	21.0	15.9	14.6		
Europe	10.6	17.9	24.5		
Asia	19.3	21.0	20.5		
Africa	3.0	2.6	2.2		
Middle East	13.3	9.3	8.9		
Oceania	3.4	7.8	6.4		
TOTAL ($\$x10^6$)	2,008	3,577	6,773	45,000	93,500
% of World Inv.				9.3	12.0

b. Investment by Foreign States in Japan (percent)

	1968	1970	1972	1980	1985
N. America	69.1	64.6	67.8	no data	no data
Europe	21.7	21.8	17.5		
TOTAL ($\$x10^6$)	411	596	1,012		

Source: Bank of Japan

by the term "Resources Diplomacy" (shigen gaikō) (discussed more fully below) and by the rash of Foreign Ministry interest in Arabia since the Yom Kippur War. Nevertheless, as noted above (p. 162), there are signs that a broader-based policy may be in the making, especially with regard to Africa and Latin America.[25] Despite formation of such groups as the Trilateral Commission, interest in Europe mostly seems limited to possible EEC restrictions on Japanese products and the availability of petrodollars through the Eurodollar market.[26]

There is little feeling that Japan should try to play the role of a major power. Indeed, almost all such visions of her have come from abroad.[27] Domestic views usually have stressed Japan's weaknesses rather than her strengths.[28] In this sense,

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[25]Witness Prime Minister Tanaka's September 1974 visits to Brazil, Canada and Mexico, plus Foreign Minister Kimura's September 24, 1974 speech to the UN and his October-November 1974 trip to five Black African states. It may be that these moves are more superficial than substantive, but they also are consistent with Japan's tendency to retain as many options as possible.

[26]A broader view was taken in Curt Gasteyger (ed.), Japan and the Atlantic World (Atlantic Papers 3) (Westmead: Saxon Hill, 1972), but this has not been representative.

[27]Most conspicuously, Herman Kahn's The Emerging Japanese Superstate (Englewood Cliffs: Prentice-Hall, 1970). Many Marxist writings also have stressed the imperialist nature of Japan's economic influence and the potential for a revival of militarism. One of the most recent is Jon Halliday and Gavin McCormack, Japanese Imperialism Today (New York: Monthly Review Press, 1973).

[28]Zbigniew Brzezinski's The Fragile Blossom (New York: Harper and Row, 1972) seems to have been closer to the thinking of most Japanese than Kahn's work.

the energy crisis and oil embargo may have been useful in bringing foreign expectations of Japan more in line with reality.

(6) Some Alternatives

This leaves several options in the search for security through diplomacy: (a) continued alliance with a major power in the Northwest Pacific; (b) adoption of an equidistant posture within the Northeast Asian balance of power; (c) participation in an Asian Collective Security System; (d) realignment as a champion of the Third World (especially that part which is rich in resources); (e) a search for allies among countries with previously unexploited common interests. This might include a Pacific Regional grouping, or the promotion of ties among emerging oceanic states.[29]

So far the first has been chosen. A departure from it will depend on such diverse but inter-related factors as the progress of detente, the state of U.S.-China relations and the health of the world economy, among others. Space does not permit an adequate analysis of any of the alternatives, but it must be remembered that Japan is not completely free to choose among them. A stable equidistant posture is attractive, but it will be many years before such non-alignment would be respected in times of stress. Similarly, an Asian collective security pact has

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[29] Ambassador Arvid Pardo's term, referring to those nations which would be particularly advantaged by broad extensions of national jurisdiction at sea. (See below, Chapter Seven.)

theoretical advantages, but the only current proposal was put forth by the Soviet Union in 1954 and revived in 1972.[30] This automatically makes it suspect in Tōkyō's eyes. By the same token, though Japan may be able to dilute the suspicions of many developing countries, there is little prospect that they will accept her as their champion. The fifth option may bear fruit one day, but any broad-based cooperation among the Pacific Basin states is out of the question for the near future. Similarly, oceanic states may support each other in law of the sea negotiations or related disputes, but this is not enough of a foundation for an entire foreign policy.

Thus, although there are pressures to modify the present Japanese diplomatic approach, there are not many options immediately available. The most consistently cited, and easily remedied weakness is the inadequacy of her intelligence. This was particularly criticized in the aftermath of the oil boycott, which almost no one had foreseen.[31] The Self Defense Forces recently have reorganized their intelligence structure, and it is assumed that the Foreign Ministry also has taken this to heart.

Revision of the Security Treaty is another possibility.

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[30]See the essays by Kotani Hidejiro and Gennady V. Astafiev in Council on National Security Problems (CNSP), Peace in Asia (Tōkyō: CNSP, August 1973), pp. 27-44.

[31]This is not to say that awareness of an approaching energy crisis did not pre-date the Yom Kippur War. The coming supply shortage officially had been recognized at least by the Spring of 1973. NKIW, April 3, 1973, p. 1.

Though it has served Japan well over the years, there is increasing talk that it has outlived its usefulness. In view of the uncertainties of the next few years, Tōkyō's diplomats probably would prefer to de-emphasize the Treaty quietly rather than abandon one of the more constant elements of their foreign policy. They may, however, be overpowered by domestic pressures on this point.[32]

Military Security

At the heart of military security issues in Japan is Article IX of the Constitution, which states:

> Aspiring sincerely to an international peace based on justice and order the Japanese people forever renounce war as a sovereign right of the nation and the threat of force as a means of settling international disputes.
>
> In order to accomplish the aim of the preceding paragraph, land, sea and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.

The Japanese Government has maintained ever since 1946 that ". . . the renunciation of war does not directly deny the right of self-defense."[33] Accordingly, despite a relatively low priority and often severe domestic opposition, defense capabilities have been systematically developed under a variety of names

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[32]For instance, the Gaimushō (Foreign Ministry) has favored the ratification of the Non-Proliferation Treaty (NPT) as well as an internationalist position in the Law of the Sea negotiations. It has been overruled on both occasions.

[33]Prime Minister Yoshida Shigeru, June 26, 1946, quoted in John K. Emmerson, Arms, Yen and Power (Tōkyō: Charles E. Tuttle, 1972), p. 53.

(some of them American-imposed), culminating in the present Air, Ground and Maritime Self-Defense Forces (SDF).[34]

The basic Japanese defense policies were outlined by the Cabinet and National Defense Council in 1957. They are:[35]

(1) Basic Policies for National Defense

> The objective of National Defense is to prevent direct and indirect aggression, and once invaded, to repel such aggression, thereby preserving the independence and peace of Japan founded upon democratic principles.
>
> To achieve this objective, the Government of Japan hereby establishes the following principles:
>
> A. To support the activities of the United Nations, and promote international cooperation, thereby contributing to the realization of world peace.
>
> B. To stabilize the public welfare and enhance the people's love for country, thereby establishing the sound basis essential for Japan's security.
>
> C. To develop progressively the effective defense capabilities necessary for self-defense, with due regard to the nation's resources and the prevailing domestic situation.
>
> D. To deal with external aggression on the basis of the Japan-U.S. security arrangements pending more effective functioning of the United Nations in the future in deterring and repelling such aggression.

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[34]See James E. Auer, The Postwar Rearmament of Japan's Maritime Forces (New York: Praeger, 1973), Emmerson, op. cit., Michael Hughes, "Japan's Airpower Options" (unpublished Ph.D. dissertation, Fletcher School of Law and Diplomacy, 1972), Martin E. Weinstein, Japan's Postwar Defense Policy, 1947-1968 (New York: Columbia University Press, 1971), and James H. Buck, "Japan's Defense Policy," Asian Affairs 3 (January/February 1974), pp. 136-150.

[35]Japan Defense Agency, Defense of Japan 1973, p. 1.

In order to win public acceptance for the Self-Defense Forces, the official literature has placed particular emphasis on their non-combat roles such as disaster relief, civil engineering and educational training.[36]

As noted earlier, the nature of the direct military threat is obscure. The Fourth Defense Build-up Plan (1972-76) is designed to produce: "An efficient defense force capable of dealing effectively with aggression on a scale not greater than a localized war in which conventional weapons are used."[37] In the face of more serious threats, the SDF are to resist until U.S. forces can be deployed to defeat the attack. Renewed fighting in Korea is a potential problem, but the most frequently discussed direct threat to Japan itself would come from Sakhalin and the Soviet Far East.[38] Certainly the concentration of the Air (ASDF) and Ground Self Defense Forces (GSDF) in Hokkaidō and Northern Honshū reflects this view.

It has been suggested that the limited range of Soviet tactical aircraft, the geographic obstacles of the Tsugaru

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[36]Japan Defense Agency, The Defense of Japan (Defense White Paper), October 1970, pp. 46-56.

[37]Japan Defense Agency, Japan's Fourth Five-Year Defense Plan (Tōkyō, 1972).

[38]In 1973, it was reported that Japan planned to hold out as long as possible against a Soviet invasion and then surrender if no U.S. help was forthcoming. The principal Chinese threat was considered to be infiltration, which Japan could mostly handle alone. (Richard Halloran, Herald Tribune (International), March 5, 1973.)

Strait and the mountainous terrain in Northern Honshū, the relatively small amphibious capability of the Soviet Pacific Fleet, and the need to operate at the end of the Trans-Siberian railroad with a hostile China on her flank would restrict the ability of the USSR to achieve a quick decision over Japan with conventional weapons.[39] Others have emphasized Japan's vulnerability to air strikes and the restricted mobility of the Ground Self-Defense Forces.[40] Whichever view prevails, the ASDF and GSDF at least have a threat axis on which to base their planning.

This is not the case with the Maritime Self-Defense Force (MSDF). Torn between theoreticians who argue for a coastal defense fleet to repel invasions, or for a "blue water navy" to protect the sea lanes, its assignment never has been clarified officially.[41] Consequently, it is mainly deployed along the Pacific Coast, towards the sea lanes which it can only partly defend and away from the direction faced by its sister services. The future make-up and employment of the MSDF will be examined in later chapters, but it is worth noting that some observers have suggested that the greatest dangers to the physical security of the Japanese people are earthquakes, typhoons, and traffic

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[39]Taoka, op. cit. (note 5-11).

[40]Kaihara Osamu, "Study on Realistic National Defense," 7 parts, Mainichi Daily News (hereafter MDN), January 30-February 5, 1973.

[41]See Auer, op. cit., pp. 128-153, for a review of these arguments.

accidents. Therefore, it can be argued, the SDF training and organization should be oriented towards disaster relief and safety measures, rather than external aggression.[42]

In any case, whatever their capabilities, the most important function of the SDF may be performed by their very existence. Without any self-defense effort of her own, Japan would have much less claim to great power protection. Moreover, in the absence of any forces at all, a decision to develop a defense capability would be a qualitative policy shift of possibly destabilizing proportions. As it is, the levels of the SDF can be adjusted to the international environment.

The Maintenance of Economic Well-Being

International Measures

(1) Food

Physical security has little meaning without enough to eat. Since domestic production provides for less than half of Japan's caloric intake, even in peacetime she is vulnerable to changes in the delicate balance of world food distribution.

In monetary terms, self-sufficiency in food declined from over 90 percent to 73 percent between 1960 and 1972.[43] The reasons are manifold. One is the fact that less than 20 percent

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[42] Fukushima Yasuto, interview, March 20, 1974.

[43] Ministry of Agriculture and Forestry, White Paper on Agriculture, 1973. Reported in Japan Times, April 19, 1974.

of the mountainous country is arable. In the years following World War II agricultural productivity reached remarkable levels.[44] Nevertheless, with restricted space there is a limit to the ability of technology to meet the added demand generated by affluence and population growth.[45]

A second, and possibly even more important reason has been the changes in the Japanese diet. Meat and dairy products have become more popular in recent years, partially replacing pre-war staples such as fish and rice (see Table 5-4).

Table 5-4

LIVESTOCK SLAUGHTERED (1,000 MT)

	1967	1970	1972
Adult Cattle	154	269	313
Pigs	103	734	885

Source: Agriculture and Forestry Ministry, Abstract of Statistics 1973.

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[44]Rice - 5.85 metric tons/hectare, second only to Australia; White Potatoes - 24.33 M.T./hectare, 6th in the world; Wheat - 2.31 M.T./hectare, greater than the U.S., but less than most European producers.

Source: Ministry of Agriculture and Forestry, Abstract of Statistics on Agriculture, Forestry and Fisheries 1973 (Tōkyō, 1973), Table IV.

[45]Despite a relatively low growth rate of 1.3%, Japan added nearly 1,400,000 people during fiscal 1973. This is equivalent to almost 100,000 additional hectares of rice fields. NKIW, July 30, 1974, p. 2.

The difficulty with meat is that it is an inefficient way of providing nourishment. It has been estimated that 7 calories of feed grains are needed for each calorie of beef consumed.[46] A more important measure than per capita calorie consumption is thus "original calories," i.e. including the amount needed to feed the livestock and poultry which later went for human consumption. The differences can be startling. In 1971, the average Japanese consumed 2,840 calories per day, 230 of which came from meat. This, however, was equivalent to 3,860 original calories.[47] For the average American, 11,000 original calories were needed to generate a daily per capita consumption of 3200.

It is in terms of original calories that Japan's dependence on imported food is most evident. By this measure she is less than 50 percent self-sufficient.[48] Some 80 to 90 percent of meat, milk, and dairy products are produced domestically, but fully two-thirds of the feed grains must be imported.[49] Indeed,

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[46]See the excellent Asahi Evening News series, "Food and People" (30 installments, July 7, 1973 to August 21, 1973), especially installment VI, "The Shadow Islands," July 13, 1973. Other estimates put the ratio as high as 10:1.

[47]2480-230+(230x7) = 3860. The Japanese consumption of 2840 calories is equal to the 1971 world nutritional standard. Food and People V, "Earth's Capacity to Feed Mankind."

[48]Published figures vary from 40% (Agriculture and Forestry Minister Kuraishi, March 14, 1974) to 49% (Food and People VI). Along with Great Britain, this is one of the lowest rates in the world. Even Italy and West Germany are nearly 80% self-sufficient in original calories.

[49]Japan Times, April 19, 1974.

nearly twice the total amount of arable land would be needed to grow all the foodstuffs now imported.[50]

Should all imports of food cease, domestic production initially could provide about 1,530 calories per day--enough to sustain life, but little else. In a year or so, some 2,100 calories could be produced by replanting paddies now set aside, and by such emergency measures as converting two-thirds of the nation's golf courses into sweet potato farms.[51] Such a drastic event seems unlikely. The Japanese also have endured austere diets before--most recently in the mid 1940s. The fact remains, however, that this aspect of her prosperity is a fragile one, particularly if some of the projected world-wide food shortages appear.[52]

Government countermeasures were promulgated in 1974 with the goal of raising the level of self-sufficiency to 70 percent by 1985.[53] A revision of farm policy to reduce inefficiencies is planned. Efforts will be intensified to halt the pollution which has diminished yields per hectare and caused the stagnation

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[50] Food and People VI, July 13, 1973.

[51] NKIW, October 22, 1974, p. 5 and Mainichi, September 19, 1974.

[52] See, for instance, Lester R. Brown, "The Next Crisis?" Foreign Policy #13 (Winter 1973-74), pp. 3-33. The Agriculture and Forestry Ministry has forecast shortages of rice, beef and milk by 1980, and of wheat, feed grains and soybeans by 1985. Asahi, August 19, 1974, p. 2.

[53] Japan Times, April 19, 1974; Sankei, March 28, 1974.

of coastal fisheries.[54] Aquaculture will be stressed.

In the international arena, efforts are under way to solidify ties with agriculture producers and states with rich coastal fisheries. Although this has received less publicity than "resources diplomacy," it is no less important. Indeed, the potential volatility of the issue can be gauged by the Japanese reaction to the 1973 American soy bean embargo. Japan already takes 20 percent of the world's corn exports and 30 percent of those of soy beans.[55] Such imports cost her nearly $6 billion in 1973, an increase of 66 percent in one year.[56]

It may be that the food problem is the most serious, long term threat to U.S.-Japan relations, especially if supply cuts are made in response to future crises. The impact can be reduced by the restraint of both governments and Tōkyō's success at altering Japan's environment, farm patterns, eating habits and other measures to increase self-sufficiency. But it also will hinge on factors beyond the control of either nation, and will remain a source of friction for years to come.

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[54]The potential impact of continued pollution on Japan's agriculture and indeed on the health of the nation as a whole is very serious. Pesticide poisoning, in particular, is a problem. See Japan, Environment Agency, The Quality of the Environment in Japan (Tōkyō, December 1972).

[55]Nihon Keizai (editorial), June 3, 1974.

[56]Japan Economic Yearbook 1974, p. 49.

(2) Resources Diplomacy

Lacking natural resources, Japan imports enormous quantities of raw materials.[57] Some projections hold that, by 1980, the Japanese steel industry alone will generate nearly three-fourths of the world-wide demand for seaborne trade in iron ore and coal.[58] While they are valued at only 34 percent of her total imports (and 3.3 percent of GNP)[59] these fuel and ore supplies clearly are crucial to the maintenance of the economy.

Well before the oil embargo, Japan recognized her vulnerability to the actions of raw material suppliers. Accordingly, Tōkyō adopted a policy of "Resources Diplomacy" which was designed to provide maximum diversity[60] and long term stability of supply, while bringing as much of it as possible under Japanese control.[61] This has led her to remarkable lengths to

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[57]See Table 5-1 for the degree of dependence on foreign supplies.

[58]Far Eastern Economic Review, May 20, 1972, p. 39. This probably will not be realized, however, since it was based on an assumption of continued rapid growth.

[59]Economic Affairs Bureau, Ministry of Foreign Affairs, Statistical Survey of Japan's Economy, 1972. Table 38.

[60]One of the foremost proponents of such wide-ranging relationships has been economist Okita Saburo. See his "Natural Resource Dependency and Japan's Foreign Policy," Foreign Affairs LII (July 1974), pp. 714-724. The limits to Japan's choices are summed up in John Surrey, "Japan's Uncertain Energy Prospects: The Problem of Import Dependence," Energy Policy, II (September 1974), pp. 204-230.

[61]Miyoshi Shuichi, "Japan's Resource Policy at a Turning Point," Japan Quarterly XVIII (July-September 1971), pp. 281-

accommodate resource rich states--some say to the point of servility. Nowhere is this better illustrated than by her reaction to issues involving petroleum. In May 1973, ITI Minister Nakasone Yasuhiro refused to join a "common front" against OPEC, calling instead for an "understanding" between the oil consuming and oil producing states.[62] Six months later, in the face of reduced Arab production, Tōkyō altered its stand on the 1967 UN Mid-East Peace Resolution (242) from a call for mere implementation, to support of the Arab view that the terms require a return to Israel's 1967 borders. At the same time, much effort has been devoted to joint ventures and industrialization plans to enhance Japan's image among the suppliers of this crucial commodity. Even though the increase in oil prices has hurt deeply, she has shown little interest in policy coordination with other consumers.

Resource supply, however, has two parts. The first is getting the materials out of the ground (or out of the sea). The second is getting them to Japan. The latter problem, of course, requires ships. The Japanese, therefore, have become wary of the growing Arab control over tanker fleets, although they are

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287. An example of this policy was the purchase, early in 1973, of some 30% of British Petroleum's holdings in the Abu Dhabi Marine Areas (ADMA) by a group of Japanese firms. The target is that 30% of domestic oil consumption should be under Japanese control. The scope of foreign drilling operations is outlined in Figure 5-2 and in MDN, July 31, 1974, p. 13.

[62]The Washington Post, May 9, 1973, p. A27.

contributing to it by building ships and training seamen. During the Mid-East embargo, Western control of most tankers enabled them to re-route shipments in such a way to minimize the impact of the sanctions on the United States and Holland. As the Arabs gain more influence over the transport facilities such diversions will become proportionately more difficult.[63]

In addition to food, already noted, timber also may be coming into short supply through a combination of commercial efforts and resources nationalism. The implications for Japan are particularly serious in light of widespread use of wood in the housing industry.[64] Cartels in other materials, such as copper or bauxite, are cause for concern, but will not be as serious as OPEC.[65]

(3) Avoidance of Isolation

One of Japan's greatest fears is economic isolation through the erection of tariff barriers, nationalism, cartels, or other measures. The increasing trade liberalization within Japan itself offers some potential for counter-leverage, but she can hardly afford to exercise it vigorously. More characteristic is

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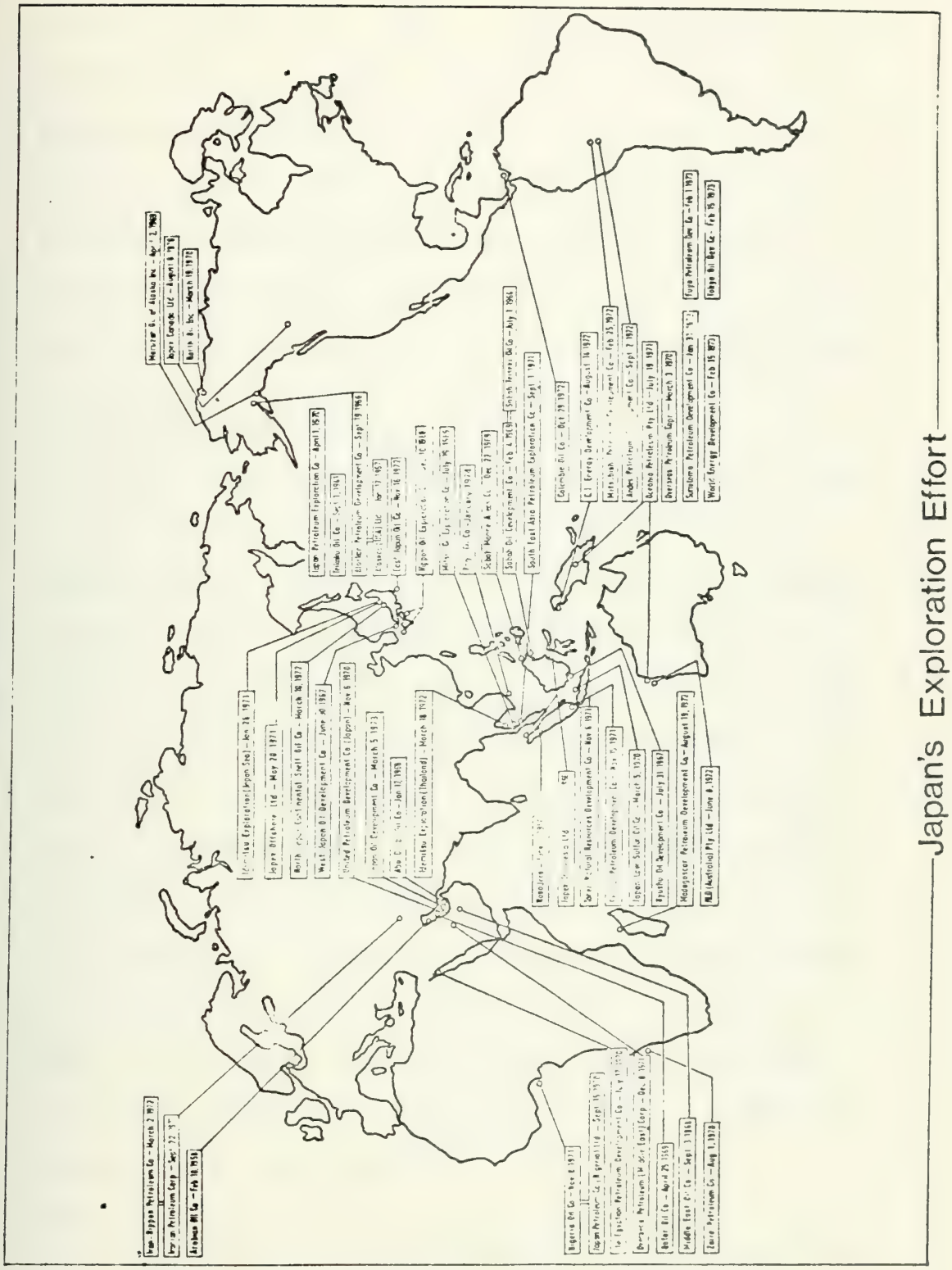
[63]Robert L. Johnson, Mobil Sekiyu Kabushiki Kaisha, interview, July 23, 1974.

[64]Forestry White Paper, 1974. Reported in Yomiuri, April 13, 1974.

[65]See the debate begun by C. Fred Bergsten's "The Threat from the Third World," Foreign Policy, 11 (Summer 1973) and continued over several issues of that journal.

Figure 5-2



the diversification of resource suppliers and recent overtures towards the Third World. While this may reduce the risk of over-dependence on any one region, it also may bring Japan into conflicting relationships, particularly if she maintains her security ties with the U.S. For example, Tōkyō's continued reluctance to commit herself to cooperative oil consumption plans eventually may force her into the choice between restricted energy supplies or restricted access to U.S. or European markets.

(4) Maintenance of Markets

Other measures for the maintenance of markets (see Tables 5-2 and 5-3) require both foreign and domestic efforts. Japanese competitiveness has been hurt by her own inflation and the 1974 round of wage hikes which averaged 30 percent. The damage has been particularly evident in the sale of industrial plants which was one of the keys to the future restructuring of the economy. Especially since mid-1974, U.S. and European firms have won contracts over Japanese firms from Southeast Asia to the Middle East. It is likely that the future will see more efforts to concentrate in technologically-intensive industries to maximize competitiveness, but the experience gained in petrochemicals, steel and other heavy industries cannot be redirected easily. Most recent studies have been quite pessimistic, especially for the next two to three years.[66]

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[66]See Namiki Nobuyoshi, "Japanese Industry's Competitive Power Examined," Economist, July 2, 1974. (Translation in

Joint ventures have been an important means of securing host country cooperation. Recently, however, even this approach has been challenged. One factor has been a general increase in nationalism, but the aggressive tactics of Japanese businessmen also have brought ill-will and charges of exploitation. It has been widely recognized that such concentration on short-run profits and their rapid repatriation is completely antithetical to Japan's broader interests. Nevertheless, the changes to date have been more cosmetic than substantive.

In the long term, Japan's exports and investments will have to satisfy increasingly strict criteria of benefit to the recipients. Technological assistance, or the programmed phase-out of Japan's participation in joint ventures may become prerequisites for entrance into future markets, at least in those states with enough resources to be able to bargain.

Domestic Measures

(1) Inflation Countermeasures, Industrial Restructuring and Pollution Control

International measures alone will not suffice if present domestic trends continue in Japan. The 1973-74 inflation rate of 24 percent was one of the highest in the industrialized world, and it certainly was not helped by the Spring 1974 round of wage

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Magazine Summary, July 1974). Also Asahi, September 17, 1974, p. 9, and the report by the Mitsubish General Research Institute, "Rise in Costs and Prospects for International Competitive Power," August 15, 1974.

increases. Opinion polls have shown this to be the primary issue in the public's mind. Another problem concerns the social capital structure, which is inadequate--only 21 percent of the roads are paved, for instance.[67] Pollution is among the worst in the world. Buffers against food and resource shortages will be needed. Finally, the economy must be restructured to take into account not only the physical limits of present day Japan, but also the future international climate.

Recognition of these problems led to sporadic demands for a modification of the goal of unimpeded economic growth in the late 1960s and early 70s. The need for a revision of the industrial structure itself finally was acknowledged in 1971, when the Industrial Structure Deliberation Committee produced a document entitled "Trade and Industrial Policies in the 1970's."[68] This proposed a concentration on knowledge-intensive industries and marked a drastic shift away from the heavy and chemical industries which had formed the basis of the "Economic Miracle" of the 1960s. It was on the crest of this new wave of thinking that Prime Minister Tanaka launched his vaunted proposal for remodeling the Japanese Archipelago.[69]

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[67] National Police Agency, 1973 White Paper. By comparison, the U.S. figure is about 43%. Similarly, only about 9.2% of Japanese houses have flush toilets--roughly on a par with Jordan and Nepal.

[68] Tōkyō, May 1971.

[69] Note that the heart of Tanaka's plan--regional

Little progress was made in this direction, however, until the oil crisis refocused attention on the impossibility of maintaining the status quo. Accordingly, in July 1974, MITI submitted a more comprehensive report which called for emphasis on the aircraft and computer industries, somewhat reduced economic growth and diversification of secondary industrial sites. The net result was to be a reduction in resource imports, improvements in the social capital structure, an easing of pollution and population dispersal. It remains to be seen how workable this particular plan is,[70] but the general direction is one in which Japan will have to move.

(2) Stockpiles

In the wake of the oil crisis, the decision was made to build up petroleum stocks from 60 to 90 days by 1980. This will entail tremendous capital investments. In addition to storage facilities, a three month supply of crude oil at $10.00 per

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development--had been proposed ten years earlier in a MITI paper entitled Industrial Location in Japan (Tōkyō, 1962).

[70]There have been several criticisms of the report, not the least of which were that it predicted: (a) a 7 to 6 percent real growth rate annually between 1975 and 1985, (b) a $10 billion balance of payments surplus by 1980 and (c) an average inflation rate of 7-8% between 1873 and 1980 (the 1973-74 rate was about 24%). Furthermore, its vaunted reduction in petroleum as an imported energy source is nearly matched by the rise in imported LNG. (See, for instance, Sankei and Tōkyō Shimbun editorials, July 12, 1974. Kenneth R. Stunkel offers considerable evidence that the Japanese environment could not support the plan even if it was fulfilled. See below, Chapter Seven.

barrel is worth some $4,500,000,000. Furthermore, some 2000 additional hectares of land will be needed for storage. In October 1974, MITI recommended ¥1,700 billion (about $5.7 billion) for this program over a five year period. The measure must be approved by the Diet.[71]

Japan's effective reserves are, in fact, somewhat larger than officially stated. For instance, the oil in tankers already enroute from the Persian Gulf, on their 20 day voyage to Japan may be considered part of her stockpile under some circumstances.[72] In addition, the huge central terminal storage (CTS) to be built in Indonesia (and perhaps in Thailand) will provide a buffer against sudden supply interruptions. However, it is the policy of the Japanese government only to consider as stockpiles those supplies which are actually under national control. Even during the 1974 oil shortage, in fact, they rejected a proposal by western oil companies to set up so-called off-shore reserves in foreign countries in order to alleviate the high cost of establishing such facilities in Japan itself.[73] Whether or not they will be able to continue this policy in the face of the local opposition to the Okinawa CTS[74] (and presumably to those

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[71] Nihon Kōgyō, September 5, 1974.

[72] Moreover, the speed of the ships can be varied if necessary to compensate for domestic supply-demand conditions. This was done in September 1974, when the tankers were slowed down in response to surplus stocks.

[73] Robert L. Johnson, Mobil Sekiyu, interview, July 23, 1974.

[74] Nihon Keizai, September 27, 1974, p. 3.

storages associated with the 90 day reserves as well) remains to be seen.

In late 1974, decisions also were made to establish stockpiles for lumber and non-ferrous metals.[75]

Preservation of the Political Autonomy/Independence

This is, of course, closely related to the degree of physical and economic security that Japan can muster. Some would charge that, in fact, Japan already is so close to the United States as to be unable to move independently. It is not clear, however, that Tōkyō could be more flexible should it disassociate itself from Washington. Certainly there would not be much more freedom in ties with Moscow. Some of the problems of alliances with other states or neutrality will be discussed in later chapters.

All Japanese feel the country's resource poverty and overpopulation. Moreover, there is general recognition that these cannot be overcome unilaterally. Thus the problem again becomes one of avoiding isolation. This is a frequent press theme whenever international negotiations arise, for instance at the Caracas Law of the Sea Conference,[76] or at the time of the oil crisis.

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[75] Ibid., September 11, 1974, p. 3.

[76] "Japan is now completely isolated" (in her opposition to 200 mile economic zones), Japan Times, July 24, 1974. This was a very interesting position, and one which bodes ill for future Japanese diplomatic efforts should it become commonplace.

Contributions to the Development of the International System

The first step in this process, obviously, is the determination of what Japan's role should be. It is widely felt that, over the long run, something more satisfying than "Japan, Inc.," or the "economic animal" must be found. Proposals have ranged from becoming a benevolent friend of developing countries to a reassertion of Japan's prewar spirituality, but no consensus has yet developed. A few of the alternatives will be examined in Chapter Seven.

In the long run, the most likely threats to Japan's security probably will come from the world-wide maldistribution of resources and wealth. Japan is a status quo power, in a world where the status quo rapidly is changing. Despite the fact that she is Asian she also is industrialized power, and this image will dominate. The December 1973 attack on Singapore's Pulau Bunom refinery complex already has been noted as a part of a global offensive by the Japanese Red Army and the PFLP against "Japanese Imperialism."[77] Such an approach may have only marginal value in inducing "armed revolution in Tōkyō,"[78] but it certainly can have a major impact on governments and multinational corporations. Moreover, with the proliferation of fissionable materials, the eventual likelihood of terrorism via

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[77] See above, note 4-10.

[78] Ōta's phrase, ibid.

nuclear weapons in the developed countries themselves has increased.

There is probably little that Japan can do alone to reduce its status as a target for such groups. Defenses might be bolstered around strategic installations, intelligence services improved, and ports of entry checked more closely, but these will neither deter nor detect truly determined adversaries. Despite the fact that there always will be violently dissident minorities, however, it still will be in the nation's long run interests to promote the developing countries' stake in the international system. The alternative would leave some of them in the position where they could only gain by trying to bring it down. Already there has been official recognition of this fact,[79] but it remains to be seen what the actual impact will be on Japan's diplomatic and economic activities.

Several volumes could have been devoted to each of the interests which this chapter has attempted to summarize. The emphasis has been on existing conditions, however some possible changes will be examined later in relation to Japan's seapower. The next two chapters will return to the ocean setting with a review of the Maritime Self-Defense Force and its possible future.

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[79]For instance, Prime Minister Tanaka's September 28, 1974 press conference.

Chapter Six

THE PRESENT STATUS OF THE MARITIME SELF-DEFENSE FORCE AND THE CONSTRAINTS ON ITS DEVELOPMENT AND EMPLOYMENT

The Current Status of the MSDF[1]

In mid-1974, the Maritime Self-Defense Force was composed as follows:

Table 6-1

Type Ship	Fleet Strength Number (Building)	Tonnage (Building)
Destroyers/Frigates	45 (5)	85,550 (12,960)
Submarines	14 (2)	19,810 (3,700)
Minecraft	50 (6)	18,789 (1,626)
Subchasers & Torpedo Boats	25 (1)	8,180 (100)
Amphibious Ships	6 (2)	8,650 (3,480)
Service Forces	18 (0)	21,997 (0)
Misc. Small Craft	61 (0)	2,328 (0)
	219 (16)	166,254 (21,866)

Fleet Air Arm

12 Anti-submarine Squadrons
5 Air Training Squadrons
1 Transport Squadron
Approximately 200 Aircraft

Source: Sōbi Nenkan '73, Jane's Fighting Ships 1974-75

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[1] In English, in addition to works already cited, see James H. Buck, "The Japanese Self-Defense Force," Naval War College Review, XXVI (January-February 1974), pp. 40-54; Sekino Hideo, "Japan and Her Maritime Defense," USNIP, XCVII (May 1971),

Each ship is assigned a homeport in one of the five Regional District Commands (see Figures 6-1 and 6-2), which are responsible for the personnel administration, repair and maintenance of their ships, as well as logistics support to the fleet in general. Although some units are permanently attached to the Districts, the majority of combatant vessels and aircraft are included in the organization of the Self-Defense Fleet. Roughly 45 percent of the MSDF's 38,323 personnel were assigned to these ships.[2] Another 26 percent were with the fleet air squadrons. In time of emergency and when otherwise directed by the Director General of the JDA, the Commander-in-Chief of the Fleet will assume operational control over all forces.

Japan's naval power has been developed, since 1957, through a series of four Defense Power Consolidation Programs which are summarized in Table 6-2. Although the current plan (the fourth)

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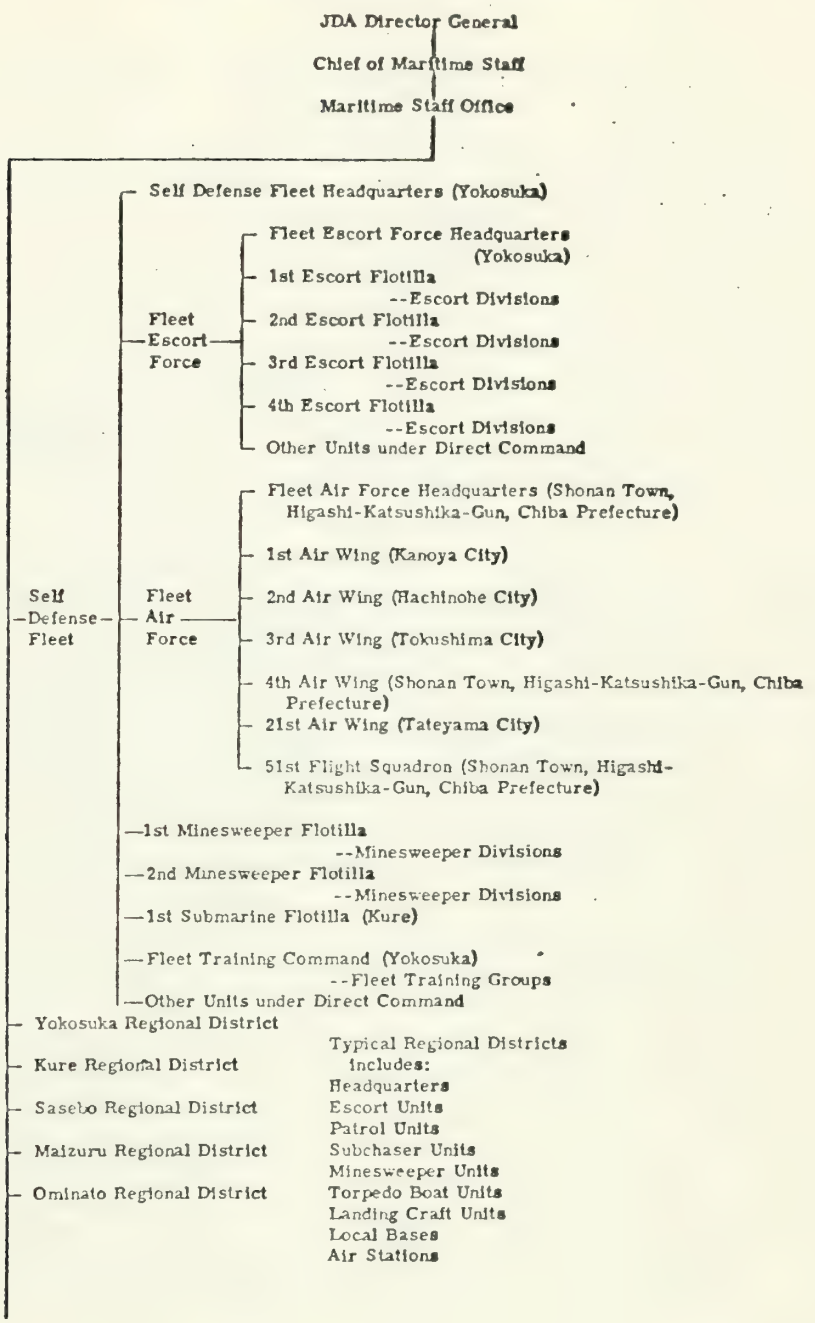
pp. 98-121; and Uchida Kazutomi, "The Rearmament of the Japanese Maritime Forces," Naval War College Review, XXVI (November-December 1973), pp. 41-48. An analysis which stresses strength, rather than weakness, is contained in Herbert P. Bix, "Report on Japan 1972. Part One: The Military Dimension," Bulletin of Concerned Asian Scholars (hereafter BCAS), IV (#2), pp. 22-32. The writings in Japanese are voluminous. Note especially the ongoing debate between Sekino Hideo and Kaihara Osamu. The Jietai Sōbi Nenkan (Self-Defense Force Equipment Yearbook) (Tōkyō: Asagumo Shimbunsha, annual), is a convenient reference. The excellent magazine Sekai no Kansen (Ships of the World) provides particularly good coverage of the MSDF. It also is one of the finest publications in any language on current naval developments world-wide.

[2]The combined complements of the MSDF ships listed in Table 6-2 is slightly over 17,000. According to the JDA, 10,100 were assigned to the aircraft squadrons.

Figure 6-1

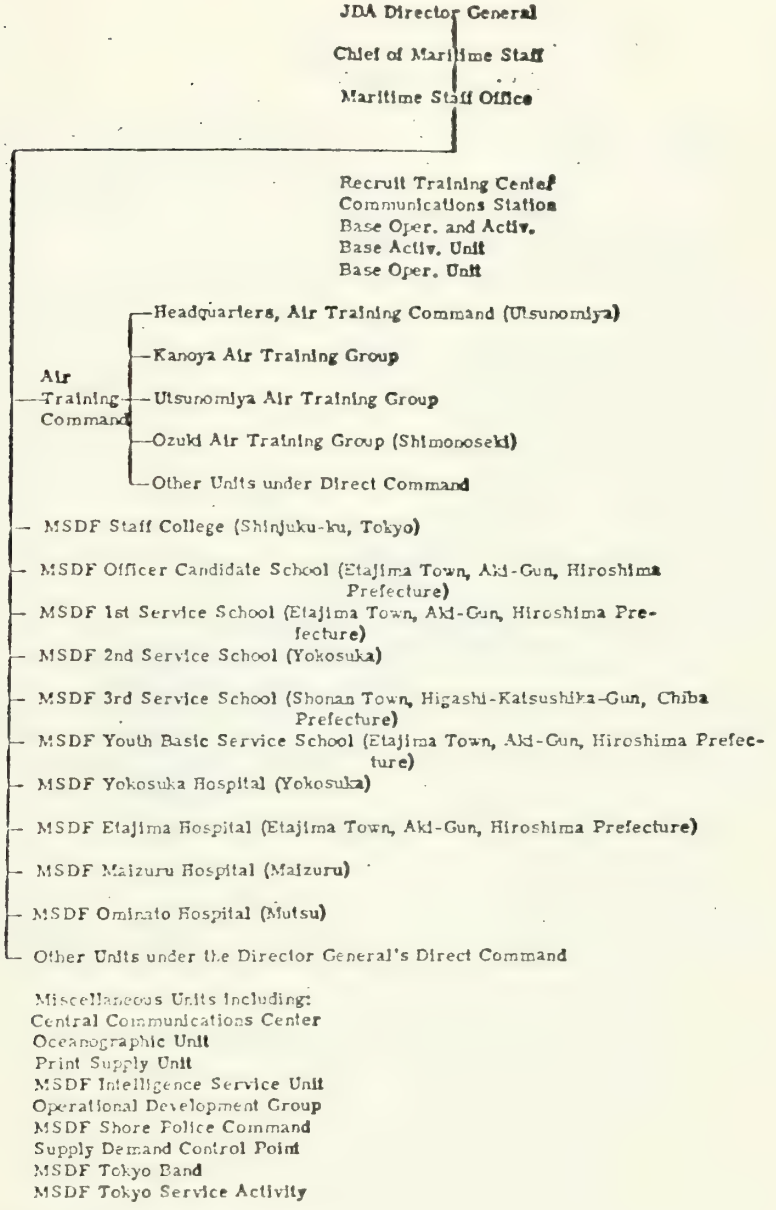
Organization of the Maritime Self-Defense Force as of April 1, 1971



Source: Auer, p. 106.

Figure 6-1 (cont)

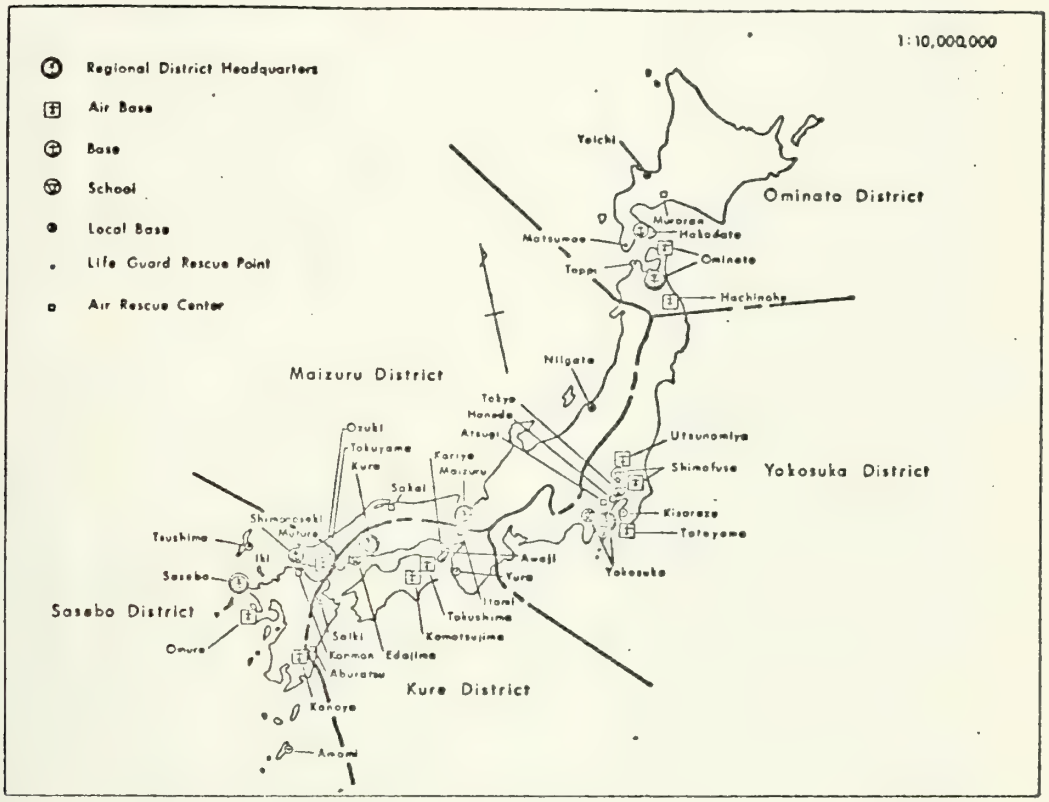
Organization of the Maritime Self-Defense Force as of April 1, 1971



Miscellaneous Units including:
Central Communications Center
Oceanographic Unit
Print Supply Unit
MSDF Intelligence Service Unit
Operational Development Group
MSDF Shore Police Command
Supply Demand Control Point
MSDF Tokyo Band
MSDF Tokyo Service Activity

Source: Japan Defense Agency.
Auer, p. 107.

Figure 6-2



Source: Auer, p. 138

MSDF BASES AND INSTALLATIONS

Table 6-2

SUMMARY OF DEFENSE POWER CONSOLIDATION PROGRAMS

	First Defense Buildup Program (1958-1960)				Second Defense Buildup Program (1962-1966)				
Approved by NDC:	453.2 billion yen ($1.26 billion)				1163.5 billion yen ($3.23 billion)				
Actually Authorized:	407.4 billion yen ($1.13 billion)				1142.5 billion yen ($3.17 billion) (less wage increase)				
MSDF budget share	23.2 percent				22.9 percent				
MSDF goals	124,000 tons of ships 222 aircraft				143,000 tons of ships 235 aircraft				
MSDF actual a. (in commission)	99,000 tons				116,200 tons 228 aircraft				
b. (under construction and in reserve)	112,000 tons				140,200 tons 239 aircraft				
Construction starts	1958	1959	1960	1961	1962	1963	1964	1965	1966
Helicopter Destroyer (DDH)									
Guided Missile Destroyer (DDG)			1						
Destroyers (DD, DDA, DDK)	2				1	2	2	2	1
Destroyer Escorts (DE)		2		2					
Submarines (SS)		2	2	1		1	1	1	1
Patrol Craft (PC)	2	3		1	1	1	1		
Minesweepers (MSC, MSO)	4	2	2	2	2	2	2	3	2
Minelayers/Tenders									
Torpedo Boats (PT, PTM)			1						
Support Ships/Auxiliaries	1	1	1					1	1
Landing Ships (LST)									

Table 6-2 (continued)

Third Defense Buildup Program (1967-1971)					Fourth Defense Buildup Program (1972-1976) (as first planned)				
2340.0 billion yen ($6.5 billion)					4630 billion yen ($15.0 billion at 1972 exchange rates)				
2281.0 billion yen ($6.3 billion)									
24.9 percent					23.2 percent (FY 72-73 avg.)				
c. 142,000 tons of ships c. 200 aircraft					c. 214,000 tons of ships c. 170 aircraft				
144,000 270 --									
1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
	1		1				1		1
						1			
1		1		2			1	2	1
1	2	1	2	1	3	1	1	1	
1	1	1	1	1	1	1	1	1	1
2	2	2	2	4	4	5	4	3	3
		2							
		1	1	1	4	2	1	1	1
3			4	2				1	2
			1		2	2	1		

Source:
1st - 3rd Defense Buildup Programs from Auer, pp. 158-162.
4th Program from: JDA Data.

Note:
The Fourth Defense Buildup Program is represented as originally proposed. Mostly because of inflation, these targets will not be realized.

has been severely undermined by inflation and several other factors, the eventual target of a 280,000 ton fleet has not been officially repudiated.

As noted in Chapter Five, the mission for which the MSDF is to prepare itself remains imprecise. The maritime goal of the Fourth Defense Plan however is:

> To improve defense capabilities in the sea areas around Japan and the ability to ensure the safety of the sealines.[3]

In the "sea areas around Japan" the focus is on invasion defense. Never officially defined, their width has been taken to be about 200-300 nautical miles (kairi) in the Pacific, and 100-200 miles in the Sea of Japan.[4] Sealane protection has concentrated on the southeast and southwest route zones. These corridors, extending roughly 1,000 miles in each direction, run south from Tōkyō along the islands of the Nampō Shotō, Bonin and Kazan Rettō on the one hand, and southwest from Ōsaka along the

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[3]"Japan's Fourth Five Year Defense Plan," op. cit. (note 5-37), p. 5. There is some ambiguity in this statement. The official translation reads:

> to improve defense capabilities in the sea areas around Japan and the ability to ensure the safety of the sealines in those areas. [emphasis supplied]

The Japanese text is subject to both interpretations. Critics of a blue water role for the MSDF choose the latter meaning, since it admits only the protection of coastal shipping. MSDF officials, however, steadfastly maintain that the "safety of the sealine" mission extends beyond the "sea areas around Japan."

[4]Tōkyō Simbun, May 24, 1973, and Mainichi, September 20, 1973.

Ryukyus on the other.[5] (See Figure 6-3.) Should fixed hydrophone arrays be developed for initial contacts, the protection of convoys could be improved by coordinating acoustic data with anti-submarine aircraft from the island bases. In this way an effective escort might be extended at least as far as Taiwan and the Marianas.

Aside from submarines and the few PT boats, little attention apparently has been given to the role of the MSDF in invasion defense. This is understandable, given the improbability of the event and the preference of naval officers for offshore operations. Nonetheless, the ocean escorts which comprise the bulk of the naval firepower are ill-suited to operations in restricted waters in the face of an even moderate air threat.

One area in which the MSDF is well equipped, however, is mine warfare, particularly minesweeping.[6] This is prudent, for Japan is uniquely vulnerable to the interdiction of her waterborne domestic transportation by minefields. This somewhat uninspiring field of warfare consistently has received inadequate attention, only to play a major part in most of the naval conflicts of the century.[7] Already returned to the "back burner" after the

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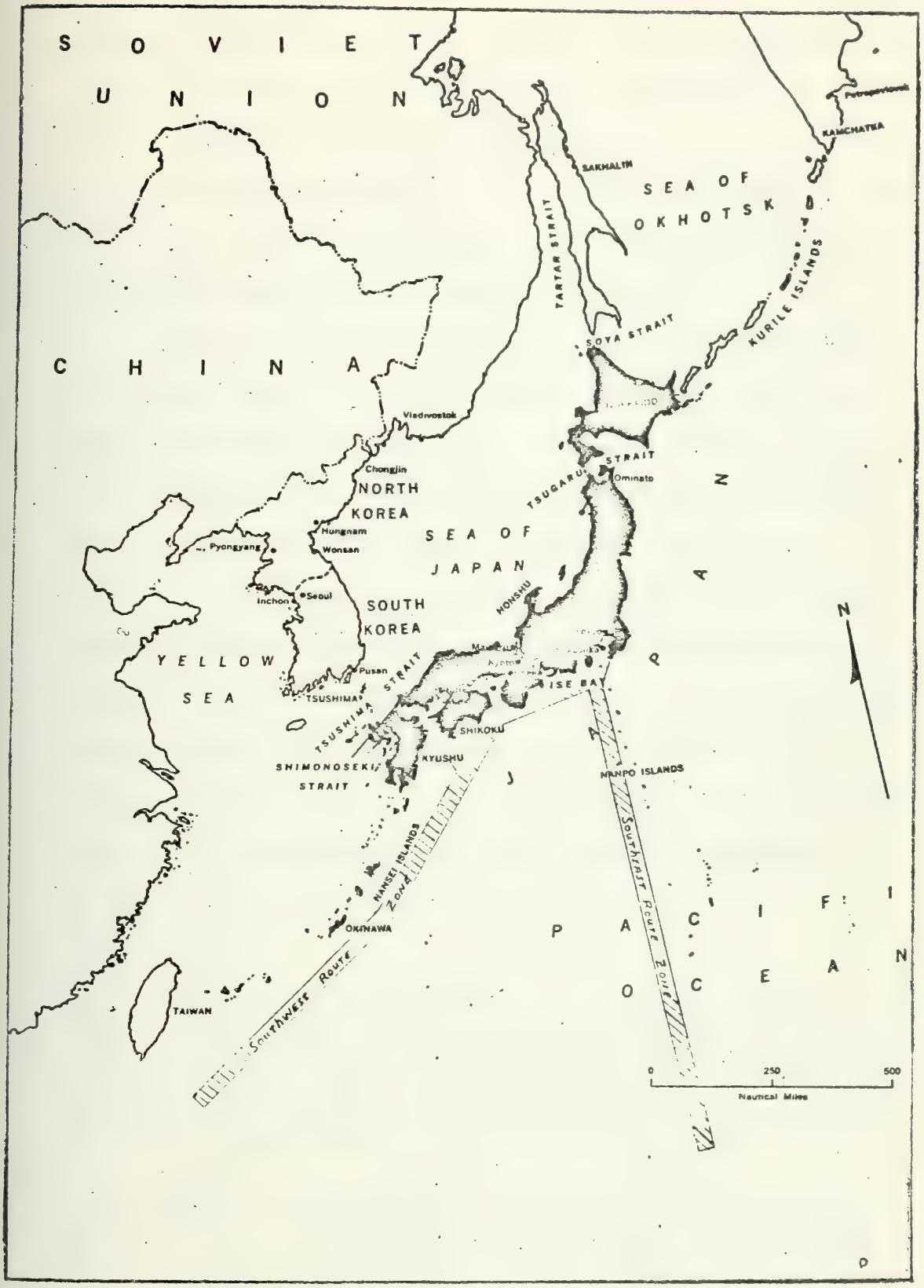
[5] Ibid. Also Tōkyō Shimbun, July 2, 1973. One of the islands to be used as a base is Iwo Jima.

[6] Indeed, minesweeping was central to the development of postwar Japan's maritime forces. See Auer, op. cit. (note 5-34), passim, especially pp. 49-89.

[7] To cite but a few examples, the irreparable Russian loss

Figure 6-3



THE SOUTHEAST AND SOUTHWEST ROUTE ZONES

dramatic demonstration of their potential in Haiphong, mines are certain to reassert their importance in connection with the growing controversies over strategic straits.

Much of the peacetime work of protecting the safety of life at sea is assigned to the 327 ships and 11,000 men of the Maritime Safety Agency (MSA--the Japanese Coast Guard).

Despite the lack of guidance, the leaders of the MSDF have built up an impressive array of ships. Their "blue water" conventional forces are exceeded only by the U.S. and USSR in Asia and, on paper at least, may be sufficient to rank Japan behind France and Britain as the world's fifth naval power. Such a comparison is presented in Table 6-3. One purpose of this and later chapters will be to illustrate that such macro-analyses of military strength usually conceal more than they illuminate. But the fact remains that the very size of Japan's fleet, and the economic potential behind it, can be manipulated to her disadvantage. This is particularly true among the still-suspicious peoples of the Western Pacific.[8]

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of Admiral Makarov when his flagship was mined in 1904, the North Sea mine barrage of 1918, the mining of Japanese home waters from March 1945 which thereafter crippled the economy even more effectively than the U.S. submarine campaign, the Corfu Channel incident of 1946, North Korea's denial of control of the seas to the U.S. Navy off Wonsan in October 1950, and the closure of North Vietnam's ports and inland waterways in 1972.

[8]Halliday and McCormick, op. cit. (note 5-27), state: "By 1975, Japan will be the mightiest non-nuclear power in the world" (p. 89). Bisson, in his review, op. cit. (note 5-13), comments: "that Japan is a weak military power is a widely accepted myth, but the facts are otherwise."

Table 6-3

SOME COMPARISONS OF "BLUE WATER" NAVAL STRENGTHS

	Britain		France		Japan		PRC		Spain	
	#	Tonnage	#	Tonnage	#	Tonnage	#	Tonnage	#	Tonnage
Aircraft Carriers	1	43,060	2	54,600	-	-	-	-	1	13,000
Cruisers/DLG	11	68,170	4	28,680	-	-	-	-	1	10,282
Guided Missile Destroyers (DDG/DEG)	1	3,500	4	11,000	1	3,050	4	6,628	2	6,000
Helicopter Destroyers (a)	-	-	2	9,160	1	4,700	-	-	-	-
Destroyers/DDM	-	-	14	39,300	27	56,850	5	16,250	13	31,847
Frigates/Destroyer Escorts	58	139,900	27	38,250	16	21,950	9	9,800	14	22,251
Nuclear Attack Submarines	7	24,000	-	-	-	-	-	-		
Conventional Attack Subs.	22	34,930	19	17,341	14	19,810	45	48,030	8	10,010
Mine Layers	1	1,375	-	-	2	2,780	-	-		
Mine Sweeper (MSO/MSC)	39	14,130	59	24,918	40	15,640	16	8,000	24	12,387
Amphibious Assault Ships	4	69,320	2	11,600	-	-	-	-	-	-
Amphibious Warfare Ships (including LCU & LCT)	7	21,120	18	11,007	12	9,772	4	6,000	17	34,031
Corvettes	-	-	25	8,595	20	7,690	30	11,200	4	4,124
TOTAL	151	419,505	176	254,451	133	142,242	113	105,908	84	137,938

Sources: Jane's Fighting Ships, 1974-75. Ships active in August 1974.

Note: (a) Those ships carrying two or more helicopters
(b) Other ocean-going combatant strengths: Italy (86/109,103), Brazil (48/90,971), India (44/89,259)

For all its apparent strength the Maritime Self-Defense Force operates under a number of severe constraints, both domestic and international. Some of these limit the freedom with which existing ships can be employed, others hinder the development of the SDF in general. In any case, in combination, they are sufficient to offset many of the MSDF's apparent strengths. The present constraints will be summarized below, and their possible evolution examined in Chapter Nine. It should be noted, however, that several are deeply-rooted, and will not be easily changed (for better or for worse).

Domestic Constraints

Constitutional-Political

As noted in Chapter Five, Article 9 of the Constitution is central to most debates over Japan's security. The controversy has focused on two points: (1) are the Self-Defense Forces themselves "war potential" and hence unconstitutional, and (2) at what level of capability do the SDF become "war potential"? Since the courts so far have refused to rule on the first question,[9] the opposition arguments of inherent unconstitutionality

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[9]The Supreme Court upheld Japan's sovereign right of self-defense in the 1959 Sunakawa decision, but did not rule on the constitutionality of the SDF themselves. In September 1973 a Hokkaidō Judge in the Naganuma case held that the SDF are land, sea and air forces "in view of their scale, equipment and capacities," and are unconstitutional. This is being appealed to the Supreme Court, where it probably will be overturned on the

have been kept alive, although there are differences between the parties. On the other hand, the absence of a definitive interpretation on prohibition has permitted the Government to preserve and expand the SDF.

The dispatch of forces overseas has been prohibited not only on a constitutional basis, but also as a result of a House of Councillors resolution at the time of the creation of the SDF in 1954. In addition to limiting Japan's ability to comply with collective security agreements, the restriction has precluded her participation in UN peacekeeping operations. Though the opposition parties have been quick to question any statement which might indicate a change on this position, the government has not pressed the issue.[10]

The net result has been to focus attention on the design of specific weapons systems and, in recent years, the total procurement levels. One debate centered on the mid-air refueling system of the F-4 fighter. Charges were made that such a

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grounds that the determination of SDF equipment is a political decision outside of the competence of the judiciary. See Nihon Keizai, September 8, 1973, and Tōkyō Shimbun, September 8, 1973. The government opinion was in Yomiuri, October 2, 1973.

[10]U.S. hints for greater Japanese participation in Asian security have been embarrassing in this regard, as was Lee Kuan Yew's 1973 call for Japanese units in a multinational task force in Southeast Asian waters. For a recent denial of overseas dispatch intentions, see Defense Agency Director General Yamanaka's Diet Remarks in Asagumo, May 30, 1974. It should be noted, however, that an MSDF training squadron is permitted to visit foreign ports every year.

capability would enable the aircraft to be used in offensive roles since its range would be increased. The government, which had plated over the fuel ducts prior to the controversy, now was forced to remove the associated piping entirely.[11] Another objection was that a newly proposed anti-submarine escort group should not be designated as a "hunter-killer unit" in peacetime.[12] Finally, there was the Diet member who questioned whether or not a new conventional submarine could be converted into a nuclear one simply by the insertion of a reactor.[13]

This relatively low level of inquiry, however, still has resulted in serious restrictions on the development of the SDF. One of the most significant developments was the "limits to defense power in peacetime" controversy in early 1973. Although defense spending consistently has been less than one percent of GNP,[14] the tremendous growth of Japan's economy had given her the tenth largest military budget in the world by 1971, and could have driven it to sixth or seventh place by the end of the Fourth Defense Plan. Moreover, though the defense buildup was expected

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[11] Mainichi, March 21, 1973; Sankei, (eve) April 10, 1973.

[12] Yasui Yoshinori, Japan Socialist Party (JSP), in Lower House Budget Committee interpellations, February 5, 1973.

[13] Narazaki Yanosuke (JSP), in Lower House Budget Committee interpellations, February 7, 1974. Reported in Asahi, February 8, 1974.

[14] Compared with 2.8% in West Germany and 3.7% in Sweden in 1971.

to be completed by 1981 with the conclusion of the Fifth Program, the lack of specific planning guidance and seemingly limitless economic expansion led to calls in the early 1970s for the establishment of a firm upper limit on the size of the SDF. This also, it should be recalled, came soon after a period of widespread warnings of the revival of Japanese militarism and a spate of predictions of Japan's future as a superpower. The result was an effective freeze on the quantity of SDF equipment at Fourth Defense Program targets (except for naval vessels) but with few controls on future qualitative advances.[15]

Closely related to the political climate is public opinion which, at best, is ambiguous about the SDF. Although public acceptance has grown since their formation,[16] there is no strong pressure for their expansion. Moreover, any attempt at overseas deployments almost certainly would be vigorously

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[15]See the Defense Agency "view" (to avoid involvement of the cabinet-level National Defense Council) of January 26, 1973, and the succeeding debate through early February. The final Program was:

GSDF: 5 Area Armies; 13 divisions, 180,000 men
MSDF: 5 Regional Units; 4-5 escort Flotillas, 280,000 tons of ships (vs 4 Flotillas and 214,000 tons under the 4th Defense Plan)
ASDF: 3 Regional Air Defense Forces (8 wings); 1 composite air wing, about 800 aircraft (vs about 770 under the 4th Defense Plan)

[16]Emmerson, op. cit. (note 5-33), indicates that support for the SDF rose from 58% in 1956 opinion polls to 75% in 1969 (p. 118). A survey taken right after the Naganuma verdict showed a 58-18% margin for the SDF with 24% undecided. (Sankei, September 15, 1973).

opposed.[17] In part, this stems from the generally homogeneous, skeptical attitude of the media towards defense. A high literacy rate, the huge circulations of the three major newspapers,[18] and a vast television audience makes the Japanese public particularly susceptible to such pressures. The corollary, of course, is that should the media's stance change, the public's could quickly follow.

Another aspect of public opinion, which is particularly difficult for the ASDF and GSDF, is local opposition to bases. Such objections usually stem either from the nuisance effects and peripheral dangers of military operations (aircraft noise, unexploded shells, etc.) or from the feeling that the large land areas could be better used in such a crowded country. Except for the air squadrons, the MSDF is relatively immune to such pressures, but it is affected insofar as such controversies reflect negatively on the SDF (and the U.S. military presence) in general.

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[17]Taoka, op. cit. (note 5-11), notes that Hideyoshi's abortive Korean campaign, the subsequent 250 years of isolation and domestic tranquillity, and the following era of imperial expansion and foreign wars have meant that "in the Japanese language 'war' is now almost synonymous to 'expedition' in nuance." Thus the concept of defensive wars and overseas deployments in stabilizing or peacekeeping roles is inconsistent with their historical experience. Whether or not these qualms also would apply to extensions of Japan's claims to heretofore uncertain territories, such as broader ocean resource zones or some of the East China Sea islets, is not clear.

[18]The Asahi, Mainichi and Yomiuri morning circulations each exceed four and a half million, compared with 2-3 million for the largest U.S. daily (The New York Daily News). Moreover, the Japanese papers are nationally distributed, thus reducing the influence of local journals.

Bureaucratic

The Defense Agency is hampered in the intra-governmental power struggle by its bureaucratic weakness. As an agency located within the Prime Minister's office, it is one level below the twelve ministries on the organizational ladder. In itself, this is not critical. The National Police Agency is very strong, some ministries are weak. However, the Defense Agency has acquired a reputation for a lack of political influence over the years. Furthermore, many of its important functions are performed by personnel on loan, notably from the Police Agency, MITI and the Finance Ministry.[19] Since their loyalty is to their parent organization rather than to the Agency, the latter's autonomy is undermined further.

Another problem is the fief-like nature of the Japanese bureaucracy.[20] In a recent example, centering on the Caracas negotiations, the Transportation Ministry and Defense Agency virtually stopped communications over the issue of free transit

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[19]Hughes, op. cit. (note 5-34), contains a detailed description of the way in which this has affected the Air Self Defense Force.

[20]In the weeks prior to the Caracas conference, a search was made for a suitable ministry/cabinet level delegate. The infighting became so intense that a Foreign Ministry spokesman remarked: "Regardless of whoever is dispatched, it is hoped that he will rise above the government office under his jurisdiction and that he will work as a state minister of Japan." Nihon Keizai, June 19, 1974. This problem, of course, is not unique to Japan.

through international straits.[21] This lack of coordination is further evidenced by the fact that no contingency plans for naval control of shipping in war time have been developed--despite the lessons of two World Wars that such authority is essential to the survival of an island state.[22] Finally, this communications gap will seriously hamper efforts to develop, much less install, containerized weapon and point defense systems for merchantmen. (See Chapters Eight and Nine.)

Economic and Industrial

Soon after the limits of defense power debates, there was talk of shifting the appropriations basis from a five-year program to an annual "rolling budget" following the end of the Fourth Consolidation Plan (1977).[23] As price hikes and personnel costs pushed the 4th Program's 4,630 billion year budget towards 6 trillion, fewer references to the Fifth Program were heard, if only because announcements of year by year outlays would be less provocative than that of a huge sum for a five year

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[21] Tōkyō Shimbun (eve), June 12, 1974 and Nihon Keizai, June 19, 1974. In an interesting variation from the Pentagon's stance, the Defense Agency called for a straits regime of innocent passage, largely because it did not want to grant the Soviets free access through Tsugaru Strait. The Transportation Ministry, on the other hand, sought to avoid possible restrictions on supertankers.

[22] See Behrens, op. cit. (note 1-55), p. 9, for the British case in both wars, and USSBS, The War Against Japanese Transportation, 1941-1945, op. cit. (note 1-55), for the Japanese experience.

[23] Nihon Keizai, June 16, 1973.

package.[24] Throughout 1974, each successive month's inflation brought further reduction in Fourth Defense Plan targets.[25] At the same time, the MSDF peacetime limits of 280,000 tons and the use of military power itself as the basis of national security policy also were called into question.[26]

The current inflation, however, only compounded a number

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[24] Tōkyō Shimbun, March 14, 1974. Figures mentioned for the 5th plan were 10 trillion yen ($36 billion at March 1974 exchange rates)--once again more than doubling the previous program. An interesting sidelight is that, although the Japanese name of the Defense Plan has not changed (Boei-Ryoku Seibi Keikaku), the Defense Agency's English language publications referred to it as a "Build-up Plan" in 1971, while the 1973 materials used the less-suggestive term "consolidation plan."

[25] First were doubts about the fifth escort flotilla which the MSDF might have acquired under the 280,000 ton peacetime limits (Tōkyō Shimbun, March 2, 1974). Then a proposal was made to reduce the quality of the equipment on the 10 ships programmed for FY1974 (the Japanese fiscal year runs from April 1 to March 31), and construction of a landing ship (LST) had been deleted. (The contracts still had not been signed by August.) Moreover, the whole question of what constituted "necessary defense power" was under review (Nihon Keizai, April 5, 1974). The following month the Defense Agency Director General admitted that he had given up the idea of "achieving completely" the Fourth Defense Plan (Sankei, May 5). Finally, in September, he stated that accomplishment of the plan now was "hopeless" (Yomiuri, September 7). The extent of this escalation is indicated by the following cost estimates (JDA Data):

	1974	1972	(million yen) Percent Increase
Helicopter Destroyer (DDH)	44,372	20,471	116.8
Anti-Submarine Destroyer (DDK)	25,830	11,089	132.9
Submarine (SS)	26,789	12,801	121.7

[26] Asahi, May 7, 1974, and Yomiuri, October 10, 1974.

of long-standing problems in the defense industry.[27] For years, military production in Japan has been relatively unprofitable. In a 1972-73 study by Keidanren, it was found that only in 11 of 293 defense projects were builders' costs below contract price.[28] Most warship construction in particular was 10 to 30 percent above contract. In another study of 67 contractors, the businesses averaged 7 percent losses on defense work. When asked why they accepted such orders and their likely unprofitability, the answers given in Table 6-4 resulted.

In Fiscal 1972 (April 1972-March 1973), average costs were 17.4 percent over budget, with warships running 46.6 percent. As noted above, the situation now has deteriorated even further.

Quite apart from issues of profit, the complexity of modern warships also is a problem. The fact that they require construction techniques which are markedly different (more labor-intensive) from those of the merchantmen in which Japanese

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[27]The 25-part series "Defense Industry in Japan," NKIW, July 4-December 19, 1972, is a good introduction in English. Recent structural shifts were outlined on April 23, 1974, p. 12. Also Auer, op. cit. (note 5-34), chapter 13. For critical views (whose ominous predictions seem to have been premature), see Herbert P. Bix, "The Security Treaty System and the Japanese Military-Industrial Complex," BCAS, II (January 1972), pp. 30-53 and Albert Axelbank, Black Star Over Japan (Tōkyō: Charles E. Tuttle, 1973), pp. 29-45.

[28]Keidanren, Boei Seisan I-inkai Jimukyoku (Defense Production Committee Secretariat), "Chotatsukaku no Jittai ni Kansuru Chōsa Kenkyū Hokokusho" (Investigative Research Report Concerning the Realities of Procurement Costs) (So-called Kurosawa 2nd Report), 1973, provided by Keidanren, p. 4. Hereafter Kurosawa Report.

Table 6-4

COMPANY REASONS FOR ACCEPTING UNPROFITABLE DEFENSE CONTRACTS

	Priority #1	#2	#3	Weighted Average
1. To support the Company's work scale	17	19	10	99
2. Expectations of Technological spin off	2	16	13	51
3. Cooperation with National Defense Policy, not profit	16	18	13	97
4. Expectations of Improving the Conditions for Receiving Future (Government) Business	33	14	3	130
5. Had carried out preparation for production prior to (receipt of) contract	13	14	17	84
6. Thoughts of Publicity from the equipment	0	3	8	14
7. Other	5	0	0	15

Source: Kurosawa Report, p. 16

Note: 1st priority = 3 pts., 2nd = 2 pts., 3rd = 1 pt.

shipyards have specialized makes them inherently less attractive to shipbuilders. The business incentives for defense production might increase if the economy continues to weaken but, without foreign sales, it is doubtful that such work could absorb more than a small fraction of Japan's industrial capacity.[29]

Closely related to the state of the defense industry is the issue of domestic production itself. This has been most hotly contested in the aircraft sector, and so has affected the MSDF mostly in the case of the PXL (new anti-submarine patrol plane). The first post-war destroyers and frigates were completed by Japanese yards in 1956, and all construction has been domestic since.[30] The structural quality of the ships has won high praise,[31] and dependence on the U.S. for shipboard, weapon,

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[29]In any case the firms themselves are not counting on it. Medium and small manufacturers who have specialized in defense sub-contracting now are seeking to diversify. (Nihon Keizai, July 31 and August 2, 1974). There are not that many. Defense production in Japan has accounted for about .4% of industrial output in recent years. One survey of 83 firms engaged in such work showed that it accounted for less than 10% of total business in 52 cases (64%). (MKIW, December 19, 1972). Foreign arms sales will be discussed in Chapter Nine but, in sum, the prospects for Japanese defense production (with the possible exception of the electronics sector) are not considered bright. Fusano Natsuki, Defense Production Committee of Keidanren, interview, August 6, 1974. See also Nihon Keizai, May 16, 1974. This is more a matter of policy and public opinion than of capability, but the fact remains nonetheless.

[30]Washington has transferred some U.S.-built ships and funded two Japanese-built destroyers, however.

[31]Although some regret that newer designs, such as the helicopter destroyer (DDH) Haruna, have not been more innovative. Fukui Shizuo, interview, January 20, 1973.

sensor and communication systems has been steadily reduced.[32] Indeed, defense electronics is one area where there is a hopeful outlook for expansion as an offshoot of the general economic shift to technologically-intensive industry.[33] Nevertheless, given the interrelationship between air and sea power, the MSDF cannot really be considered independent so long as the ASDF is not.[34] At the same time, the scale of projected SDF aircraft demand hardly justifies domestic production, while the drain on currency reserves mitigates against foreign procurement. Thus the eventual decision could favor the curtailment of aircraft acquisition (which probably would be accompanied by calls for general defense spending limitations), an easing of the restriction on foreign sales (see Chapter Nine), or a concentration on missiles and technologically-advanced installable equipment. There also is the possibility that defense contracts could be used for economic "pump priming," but this does not seem likely.

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[32] Nearly all MSDF equipments now are home-made, though they are compatible with American ammunition and, to a lesser extent, with U.S. spare parts.

[33] NKIW, April 23, 1974, p. 12.

[34] One example of the dangers of relying on foreign weaponry was given in April 1974, when the U.S. announced that it was phasing out its Nike-Hercules SAM system. Since Japan uses a similar missile there eventually will be difficulties in obtaining spare parts. However, domestic production of spares is unlikely since the missiles' 1950s-vintage electronics contain vacuum tubes which are so outdated that Japanese firms are unwilling to make them. Asahi, April 4, 1974.

A further impact of inflation on the MSDF, of course, has been a reduction in operating time due to higher fuel costs.[35]

Manpower

The Self-Defense Forces long have had recruiting and retention problems. In the short run, this situation may ease if the economy worsens. In the longer term, however, demographic forecasts predict a reduction in the size of the 18-25 age group from which the SDF (and industry) draw most of their recruits. These problems are compounded by anti-military sentiment and the low prestige of the Self-Defense Forces. Concern has been voiced about the quality of recent officer candidates. Further difficulties have been added by the restrictive measures placed on voting permits for SDF personnel by some local governments in the wake of the Naganuma decision.

The MSDF has achieved more than 95 percent of its overall personnel target, but this figure is somewhat overstated since the manning levels of some critical shipboard rates are only about 80 percent.[36] As a result, both maintenance and operational proficiency have suffered. Shortages of fuel and airspace for training have compounded the difficulties.

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[35] Asahi Evening News, November 8, 1973.

[36] Figures cited by Kaihara Osamu, interview, March 24, 1974. The manning level issue actually is quite complicated, involving reserves, personnel away at schools or detached for new construction units, and many other factors. Moreover, it is a problem faced by nearly all navies in one form or another. Nonetheless, it has affected the MSDF's operational readiness.

Logistical[37]

Despite the impressive hardware which the Self-Defense Forces operates, their logistics backup is woefully inadequate. For instance, ASDF interceptors have as few as four anti-air missiles per aircraft. The Ground Self Defense Forces have been estimated to have only about 30 minutes of combat stores. The MSDF surface-to-air missile inventory consists of about 50 weapons--which can be expended at a rate of more than 10 per minute. Moreover, there are few facilities in Japan capable of producing relatively sophisticated ammunition. Most of the missiles and artillery shells are supplied from the U.S.

It must be noted, however, that this has been the result of a conscious decision on the part of SDF leaders. Since the beginning of the defense build-up, the emphasis has been on long lead-time items such as ships and aircraft. There would be enough warning, it is argued, to upgrade the logistics structure in the event of an increase in regional tensions or a divorce from the United States. This approach has served Japan well to date. It remains to be seen, however, whether or not the warning time will be available, and whether or not her leaders will respond to it in time.[38]

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[37]Mostly from Auer, op. cit., Chapter 14.

[38]A study of 20th century wars by the Australian Central Studies Establishment concluded that the mean warning time has been about four years, but that there have been large variances. The Korean War, for instance, came with only about two days'

International Constraints

Among the international constraints on Japanese seapower are the reactions of great powers and those of East Asian developing countries. The Arab view also has become a consideration since the oil crisis.

Great Power Reactions

Short of nuclearization it is difficult to see that the United States would have any objection to an increased share of the defense burden by Japan. The People's Republic of China, which once accused the Self-Defense Forces of being the reincarnation of Japanese militarism, now seems to view them as a stabilizing force, so long as they remain within the framework of the Security Treaty and confine themselves to local waters. Within these limits, she probably would have little objection to an expansion of Japanese naval forces. The Soviet Union is something of an enigma. In 1971 and 72 it was bitterly attacking, along with the People's Republic, the prospect of renewed Japanese militarism. These attacks abated dramatically in the wake of the Nixon and Tanaka visits to Peking as Moscow sought to improve relations with Tōkyō and attract capital for Siberian development. Since increased Japanese naval power almost certainly would be directed against the USSR in time of war,

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notice to the West. Author's interview with CSE personnel, June 20, 1974.

she probably would not encourage an SDF buildup. However, if such a move were conducted in the framework of abolishing the Security-Treaty and the establishment of an Asian collective security system, it might be more welcome.

Developing Country Reactions

The results of the Southeast Asia interviews, noted in Chapter Four, were not surprising. With the exception of Singapore, which seeks security in a local balance between as many great powers as possible, the reaction of observers in all countries to a Japanese naval presence (even as part of a multilateral force) was overwhelmingly negative. These *a priori* objections, however, do not imply an effective constraint. Should Japan unilaterally decide to expand her naval forces, and even the sphere of their employment, there would be very little that they could do about it. In an actual engagement, however, the SSMs of the coastal state patrol boats could be effective, particularly since MSDF ships are mainly ASW configured.

Some Arab states have shown an interest in buying Japanese weaponry, although they are not likely to get it. Japan's own defense programs probably will have little influence on her Middle East diplomacy so long as her forces remain outside of the Indian Ocean.

Summary

The use of ship or aircraft rosters as measures of Japan's military power and potential is misleading. For a host of reasons the MSDF is truly a "Paper Tiger." Even should the quantity and quality of its equipment expand markedly, the lack of national inclination to use such force would undercut its credibility, thus making attempts to use it even more dangerous. Projections of Western naval forces being used in support of diplomacy are difficult to extrapolate to present-day Japan. Such leverage implies a linkage between military force, economic power and political influence which is rarely voiced in Tōkyō. In fact, the Japanese Government consistently has sought to separate politics and economics in international negotiations. This has brought her a number of spectacular successes, such as the establishment of diplomatic relations with Peking while increasing her trade with Taiwan. It is not clear, however, that this happy separation can be continued. Certainly it is hard to insist that food and oil are not both political and economic weapons.

The potential evolution of the above mentioned constraints will be examined in the next chapter. For the present, however, the political-economic dichotomy is incompatible with the active use of seapower (or almost any power) to protect vital interests, since nearly all of the interests which Japan perceives as vital are economic.

Chapter Seven

THE EVOLUTION OF THE INTERESTS AND CONSTRAINTS

Intangible issues will be central to Japan's future maritime posture (indeed to her whole security problem). Among these are (1) the possible emotional reaction to severe and prolonged economic difficulties, (2) the development of a consensus concerning Japan's future course, and (3) Japan's continued acceptance of a passive international role. Her reactions to the external environment also will be critical. This chapter will examine some of the domestic and international changes which may affect the acceptability and employment of the SDF in general and the MSDF in particular in the next few years.

Domestic Issues

An Uncertain Future

So long as Japan's major political decisions involved the domestic division of an ever-growing economic pie, there was little incentive to change, or even to challenge the national course. There were unwanted side effects to be sure. Worsening pollution, urban overcrowding and a few clouds on the resource horizon had been apparent since the late 1960s. Indeed, by 1971 or 72 there was widespread recognition that the economy would

have to be reoriented from unimpeded growth towards social welfare goals.[1] Though the two Nixon shocks had shown the rate at which the world was changing, it always was felt that there would be time enough to make the transition. This comfortable vision was shattered in October 1973.

The Japanese overreacted to the oil embargo and later price increases, as did most of the world. These sentiments moderated once it was clear that the country would not grind to a halt for lack of fuel or foreign currency. However, a more sober analysis has revealed other serious, long-term weaknesses--notably a combination of persistent inflation, a high debt-to-equity ratio for most Japanese firms (which makes them vulnerable to inflation countermeasures--even as they profited from the price rises themselves), the disappearance of cheap energy and transportation and an ever worsening pollution problem.[2] These are coupled with an industrial structure which limits conservation possibilities.[3] These difficulties are compounded by the weakened position of the

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[1]For instance, the 1971 report on "Trade and Industrial Policies in the 1970s," op. cit. (note 5-68). It also is interesting to compare the changing tone of Keidanren President Uemura Kogoro's speeches as reprinted in Keidanren Review during this period.

[2]See Donald Keene, "The Short, Happy Life of Japan as a Superpower," New York Times Magazine, March 3, 1974, p. 19.

[3]Japan has resisted Secretary Kissinger's pressures for a commitment to a 15% energy consumption reduction on the grounds that Japan's energy usage is much more industrial than America's, thus there is less room for savings through consumer conservation measures.

ruling Liberal Democratic Party (LDP), which will find it hard to take the necessary strict, and thus unpopular, economic measures.

In retrospect, the problems did not arise so suddenly. Japanese prosperity, throughout the 1960s, had fed, indeed thrived, on inflation.[4] Thus, so long as real growth continued at 9 to 11 percent per year, there was little incentive to control the inflation at an early stage. Even by early 1973, when prices were rising at an annual rate of about 13 percent, no effective measures were taken.

Japan also profited from the U.S. efforts in Korea and Indochina, although they don't like to admit it.[5] It is not yet clear what impact the end of the Vietnam War and the U.S. retrenchment will have on the future peace and stability of Asia. It is fairly evident, however, that it already has resulted in a

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[4]The average annual increase of the consumer price index in the late 1960s and early '70s was about 6%. The real cost of money thus was very cheap (a typical prime rate being around 7.5%--NKIW, October 28, 1972).

[5]See Bix, "The Security Treaty System and the Japanese Military-Industrial Complex," op. cit. (note 6-27), pp. 49-50. In 1950-53, U.S. special payments to Japan totalled $2,374,000, which was 50.3% of her total exports for the same period. It has been estimated that direct Vietnam procurement between 1965 and '67 was $450 million, and that indirect effects totalled nearly a billion dollars. (Indirect effects stem from exports which satisfy war-generated excess demand either in the U.S. or in Asia.) This figure was supported by a Nihon Keizai estimate that: "Realization of the peace in Vietnam is going to become a factor in causing a maximum yearly deficit of around $1 billion in Japan's balance of payments." (NKIW, November 21, 1973), p. 2.

substantial financial loss to Japanese business.[6] Farther afield, the so-called North-South problem has been apparent ever since the 1964 UNCTAD, if not before. The only really surprising development was the ability of OAPEC to act in concert.

Whatever their origins, Japan's domestic weaknesses are likely to be compounded by the international situation. There are, for instance, signs that many countries may be adopting a neo-mercantilist outlook in place of the free-trade liberalism under which Japan has prospered. The most obvious effect is resources nationalism, now finding its way to the industrialized world as well.

Paradoxically, Japan's commitment to unrestricted trade and inflation countermeasures may contribute to the world-wide recession to which she is so vulnerable. Though her own 1974 export drive succeeded spectacularly in balancing the increased costs of raw materials, it has accentuated the same problem in

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[6]The interpretation of this is left to the beholder. A radical critique may point to the ties between Japan and American imperialism. Others may see a welcome partnership in the pursuit of common goals. Still others may visualize unwarranted Japanese profits from the defense burdens of others. (A Republic of China naval officer, who requested anonymity, made the last observation in an interview, May 8, 1974.) In any case, it is an economic fact of life. Whether or not such monetary gains alone would ensure Japan's support for future American military activities is doubtful, especially if such actions might subject her to resource cut-offs or terrorism. A billion dollars a year, after all, is less than .3% of GNP or 2% of 1974 exports.

many other countries.[7] In the long run, this will be counter-productive since it eventually will reduce the demand for exports itself, or even stimulate trade barriers. By the same token, the domestic success of Japanese inflation countermeasures also will aggravate the balance of payments problems of those countries which will be drawn to import from her.

The point is that Japan has become too important to the world's economy to allow her the luxury of unilateral measures, vulnerable though she may be in many ways. While she has no organization like the EEC to support her in times of stress, neither does she have such a body to encourage cooperative solutions. It would indeed be ironic if Japan's success at, and continued commitment to free trade once again brought her out of phase with her times, just as her imperialism was anachronistic in the 1930s and her isolation had grown untenable by the mid-nineteenth century.

Signs which point to domestic disharmony[8] and a lack of

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[7]This is a criticism of degree rather than of kind. Japan must export to survive. She also had to cope with a massive increase in oil payments. Thus a move to expand exports was understandable. The problem has stemmed from the decision to promote exports at the maximum possible level, rather than to accept a more moderate income (and possible payments deficit of her own) in consideration of the problems of her trading partners. Japan, of course, can legitimately complain that her diligence and talent should not be penalized by the lack of others' competitiveness, but the problem remains nonetheless.

[8]Takane Masaaki, "Historical Structure of Japanese Bureaucracy--Bureaucracy and Modernization in Japan," Chūō Kōron, September 1974. Translation in Magazine Summary, October 1974.

self-discipline and group identity among the young[9] are on a different plane. Should these predictions be realized, they would undermine the very conditions which lay at the heart of the post-war prosperity. Another possibly significant development is the growth of citizens' groups, which have especially centered on environmental issues.[10] Their importance lies in the complications which they have introduced into regional development and nuclear power plant plans.

Given any sort of direction, the inherent talent, loyalty and homogeneity of the Japanese people will enable them to succeed wherever they are led. It is this problem of leadership, however, which is critical. There virtually is no group in Tōkyō now capable of innovative political guidance. This is not a problem unique to Japan, but it may be more critical for her than for some other industrialized states because of her vulnerability.

The LDP has been losing votes for years. The July 1974 elections were indicative of voter dissatisfaction, which only was compounded by the personal scandals which later surrounded

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[9]Morita Akira (President of Sony) in NKIW, May 28, 1974. Also, Prime Minister's Office, 1974 White Paper on Youths. Reported in MDN, December 7, 1974.

[10]Some have argued that these were spawned by weaknesses in the policy-making process and can be expected to increase in the future. See B. L. Simcock, "Environmental Pollution and the Citizen's Movements," Area Development in Japan 5 (Tōkyō, 1972).

Prime Minister Tanaka. Whether or not future Prime Ministers can regain public confidence remains to be seen. But their success will depend on factors largely beyond their own control, such as the health of the U.S. economy and the cooperation of other faction leaders (who are also potential successors).

One solution might be some sort of party realignment to permit the continuation of conservative government. Coalitions among the present parties are possible, but probably would be unstable. Though a revitalization of the LDP is doubtful without sweeping (and improbable) leadership changes, neither is any opposition party considered able to win a majority of its own. At the same time, the latter seem totally incapable of acting in concert. Thus several years of domestic political uncertainty may result. Under these circumstances, the possibility of a more authoritarian government must at least be considered. This requires some explanation.

Consensus is important to nearly all Japanese evolutions.[11] The formation of such an outlook rarely is very rapid. In general, it is an incremental process, almost imperceptible at each step, but suddenly evident after seemingly endless wrangling (or drifting, since important parts of the sequence often are conducted out of the public view). In many cases, preparations will have been made for a number of contingencies while awaiting

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[11] See Nakane Chie, Japanese Society (Berkeley: University of California Press, 1972).

clarification of the situation. Once an appropriate policy becomes apparent, control devolves to the group or faction best suited to the circumstances, which then acts quickly.[12] This is one reason why Japanese policy sometimes seems prone to radical shifts of direction. Such a consensus is not equivalent to unanimous support, but it does mean that the views of all groups at least have been considered.[13]

In any case, the success of Japanese business and the LDP (and conversely the failure of the opposition) has been the ability to achieve inter-group coordination. This was not very difficult when the parties concerned were competing for relatively larger or smaller shares of an expanding economy. Today, however, some vested interests are faced with the spectre of absolute losses. Under such circumstances, the very group-orientation which has been the strength of Japan's post-war recovery could become a detriment should intra-organizational loyalty preclude inter-organizational cooperation. This is especially true within the bureaucracy.[14]

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[12]This approach also is the key to Japanese business practices. These usually are low-risk strategies, often preferring to pay additional money for foreign patents or to invest in joint ventures rather than pioneer in new areas. The ocean mining field, to be examined later, is a classic example.

[13]For instance, the 1960 opposition to the Security Treaty was directed more against Prime Minister Kishi's strong-arm tactics in obtaining Diet approval than against the alliance itself.

[14]Takane, op. cit. This condition apparently prevailed in the preparations for the Law of the Sea Conference negotiations.

Thus, although charismatic leadership rarely has been a feature of Japanese politics, some sort of Oyabun (chief or boss) may be needed to resolve conflicting interests. Without it, extended delay, or even paralysis on important issues is possible, indeed probable. That such circumstances might lead to an authoritarian government is by no means certain. Indeed, it is less likely than a party reshuffling, but it cannot be ruled out. The prospects for renewed Japanese militarism, however, are virtually nil. These will be noted in the next section.

Given these conditions, the Japanese are not optimistic about the future. In a recent survey, a group of academic experts was asked: "What image do you have about the Japanese society in the latter half of the 1970s?" The answers, in order of frequency, were: "upheaval, instability, disaster, crisis, disruption and dispute."[15]

In many respects, logic would so indicate. But Japan consistently has shown herself more resilient and adaptable than would seem possible on the basis of tangible assets alone. In any struggle for economic survival, a nation's fate will hinge on the performance of her average citizens, plus the resources and the productive capacity available to them. Japan surely excels in the first and third areas just as she is weak in the second. Even under rampant nationalism, however, there will be those who must sell their raw materials to survive. In such a cutthroat scramble for resources, Japan's capital and intellectual

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[15] NKIW, July 30, 1974.

stocks certainly can be traded for enough of a supply to ensure a decent (if unspectacular) living for her people. In fact, the pollution generated by continued production is likely to be more of a threat than the curtailment of that production by external factors.[16]

The days of dramatic growth may be over, but Japan will remain one of the world's major reservoirs of industrial potential and technological skills. As such, she will continue to have a significant influence on the global economy.

Japanese Militarism

Militarism is defined as:

> Predominance of the military class or prevalence of their ideals; subordination of the civil ideals

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[16] Kenneth R. Stunkel and John Copper argue persuasively in a forthcoming book (Economic Superpowers and the Environment) that Japan's industrialization already has brought her to the brink of irreversible environmental damage. Moreover, although lip service is paid to emission control laws, conservation and the need to clean up coastal waters, neither government nor business has really recognized the magnitude of the problem. For instance, the MITI plan noted earlier (note 5-70) has been criticized for predicting 6-7 percent growth on the grounds of resource unavailability. Stunkel suggests that the target of such growth itself is out of touch with reality. No thought, apparently, has been given to the impact of burning or refining 4,000,000,000 kiloliters of oil in Japan's already marginal atmosphere over the next ten years. (This is, it should be noted, nearly two and a half times the amount consumed in the quarter-century between 1947 and 1972.) Similarly, even the maintenance of present levels of production may lead to major shortages of fresh water, the disappearance of many fish from adjacent waters and reduced agriculture. No doubt the Japanese would endure these hardships stoically, but that is not equivalent to finding a solution for them.

> or policies of a government to the military; the spirit which exalts military virtues and ideals; the policy of aggressive military preparedness.
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> Webster's New International Dictionary--2nd ed.

Warnings of the revival of Japanese militarism were heard frequently in the early 1970s.[17] Even moderate analysts argued that the self-confidence bred of the post-war recovery and a desire to play a political role commensurate with her economic power would lead Japan to a larger military commitment.[18] Now, with the limits to growth apparent, new warnings have arisen.

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[17]Bix, "Report on Japan 1972," part I, op. cit. (note 6-1), saw Japan's conservative leadership pushing for a revision of the Constitution and other changes which, if accomplished, would mean that: ". . . the internal position and status of both military and emperor in Japanese life are sure to be greatly enhanced . . ." (p. 29). Axelbank, op. cit. (note 6-27), was concerned that a combination of industrialists, former Imperial Army and Navy officers and right wing politicians were "vigorously backing stepped-up rearmament" (p. 25) while "the people are showing increasing apathy towards politics . . ." (p. 21). Other revisionist writings raised similar critiques. The last major attack in the Chinese press was in September 1971 (Peking Review, September 17 and 24). See also James Reston's interview with Chou En-lai, New York Times, August 10, 1971. In late 1972, however, Chou reportedly told Prime Minister Tanaka that he "welcomed a 'reasonable growth' of Japanese strength as a potential counterweight to the Soviet Union's 'aggressive designs' in Asia." (New York Times, December 13, 1972). The Soviet Press, whose view of "reviving militarism" also seemed to depend on the broader state of Moscow-Tōkyō relations, launched several attacks in January 1973, but has been quiet since. See Angus M. Fraser, "Some Thoughts of the Resurgence of Militarism in Japan," Pacific Community (April 1973), pp. 437-451.

[18]Herman Kahn, for instance, wrote: "I do not suggest that Japan in the year 2000 will aspire to the role of world policeman, at least not by itself. But the Japanese may well wish--indeed feel obliged because of their pervasive worldwide interests and capabilities--to take part in such a role . . ." (p. 8).

It is said that the desperation borne of a coming economic crisis may stimulate nationalism, an authoritarian government, nuclearization, and a militarist foreign policy.[19] Japan, it seems, is forever suspect.

The possibility of a more authoritarian government was admitted earlier in this chapter. Most emphatically, however, this would not be equivalent to militarism in the pre-war sense. Whatever similarities the international system may come to have to the 1930s, Japan's domestic circumstances are sufficiently different to invalidate the analogy.

For instance, (1) there is no divine symbol which radical groups could use for leverage to control the government as the Imperial Army and Navy once did. (2) No longer is the public dazzled by the victories of 1895 and 1905. Indeed, the defeat in 1945 thoroughly discredited the military in most people's eyes. (3) Today's politicians, whatever their faults, are much better educated and more experienced than were their 1930s counterparts.[20] At the same time, the SDF do not attract the cream of Japan's youth as the Imperial armed forces did before the war. (4) The principle of civilian control of the military

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[19]Martin Weinstein, "Japan's Foreign Policy Options in the Coming Decade." Paper prepared in September 1973 for a forthcoming book entitled Japan's Coming Decade, edited by Hugh Patrick and Lewis Austin.

[20]See Takane, op. cit. (note 7-8).

is firmly established.[21] The Prime Minister also is in a much stronger position with respect to his cabinet than in pre-war days. The Defense Agency, on the other hand, is not even a ministry. Finally, (5) the perceived gains of military action have been much reduced. In the first place, the basic justification for colonial wars has vanished. In the second, Japan's economy has outgrown regional self-sufficiency. The prospect of a self-contained Co-Prosperity Sphere at least had popular credibility, whatever the realities might have been. In any present or future international environment, from super-power condominium to anarchy, Japan's use of military force to secure even a fraction of the resources she requires is an impossibility.[22]

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[21] As one writer has noted, in a slightly different context, any clandestine planning to undermine this arrangement almost certainly would bring forth an "Ellsberg-san" to leak the story. See Monte R. Bullard, "Japan's Nuclear Choice," Asian Survey, XIV (September 1974), p. 852. An example of the outcry stirred by a relatively innocuous contingency plan in the mid-1960s is given in Matsueda Tsukasa and George Moore, "Japan's Shifting Attitudes Towards the Military: Mitsuya Kenkyu and the Self-Defense Forces," Asian Survey, VIII (September 1965), pp. 614-625.

[22] This would be true even if other powers acted successfully to gain access to raw materials elsewhere. Japan's only options would be Southeast Asia, Korea, and perhaps Taiwan, which could not possibly make her self-sufficient. This is illustrated by the following data.

Material	Total Production (A)	Japanese Demand (B)	A/B (1972 data)
Petroleum (M/T)	67,354,000	249,193,000	.27
Iron Ore (M/T)	1,969,000	111,521,000	.02
Coal (M/T)	12,621,000	49,280,000	.26
Wheat (M/T)	322,000	5,148,282	.06

Source: (A) UN Statistical Yearbook 1973. Korea, Taiwan, Southeast Asia
(B) Finance Ministry

Analogies to the 1930s thus have been discounted on five grounds.[23] The third and fourth conditions may change. Indeed, one potential problem of Japanese politics is that it might be difficult to contain, quickly, a regime which was prepared to disregard minority party and media opposition in the conduct of its programs.[24] However, the first condition noted above would prevent the cloaking of consistently unsuccessful policies in Imperial protection. Some may long for a return to pre-war spirituality and frugality. Others may wish for increased defense spending. Except for a few extremists, however, there is no support for the dominance of military values. At the same time, the physical limits of the utility of Japan's use of force will preclude jingoist adventurism.

Charges of militarism will persist, however. They are too useful a political tool for the opposition. In fact, this equation of legitimate self-defense concerns with militarism has been one of the main reasons for the lack of a meaningful debate on security policy in Japan. The same is true for nuclear questions.

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[23]For some additional reasons, see Richard Ellingworth, Japanese Economic Policies and Security, Adelphi Paper No. 90 (London: IISS, 1972).

[24]Nakane Chie has voiced concern that the single-minded dedication of the Japanese once their goal is defined could be dangerous if the wrong ideal were chosen. See Wakaizumi Kei, "Japan's Dilemma: To Act or Not to Act," Foreign Policy, 16 (Fall 1974), pp. 30-47.

The Quest for a Satisfying World Role

Since 1945, Japan's international political role has been relatively passive. Her economic strategies have been reactive, but also highly nationalist.

Quite apart from the militarism issue, it is possible that Japan might try to influence external events more actively in the future. There is no doubt that she would appreciate more international recognition. But how far she will go in seeking the associated commitments, or even accepting those now available (such as UN peace-keeping assignments), remains to be seen.

The key question is whether or not Japan can find a place for herself which is emotionally satisfying without being expansive. It is not clear that she can. On the other hand, it does not necessarily follow that dissatisfaction will lead to expansion, at least in the near term. In the first place, so long as the Japanese are undecided about their own self-image, they probably will not try to impose it on others. Should they again succeed in some national achievement which could be the object of collective pride, such as the Meiji modernization or the post-war economic miracle, it might be tempting to hold it up as a model. The establishment of a stable, welfare-oriented, low-waste society might be such an example, but its fulfillment seems years away.

In the second, if Japan's economy really is endangered, the excess energy (physical or mental) available for non-essential

foreign policy projects will be marginal.[25] A diminished emphasis on the separation of politics and economics, and increased commitments to international cooperative plans might give the appearance of an expanded political role. Such moves, however, could be understood better as new strategies for the economy's maintenance than as a fundamental redefinition of international responsibilities.[26]

Finally, the characterization of even Japan's current role as "passive" is misleading. It is true that it is reactive in the sense that the major initiatives usually are left to others. But it also is highly opportunistic, self-serving, and fast-paced. The diversification of resource suppliers, strategies to cope with nationalizations and trade barriers, and steps to reduce vulnerabilities to third party actions are challenging, time

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[25]It might, of course, be tempting to resort to the ploy of foreign distractions to domestic problems. Were strikes, riots, or terrorist activities to proliferate, for instance, externally-sponsored subversion always could be blamed. But this is not the same as embarking on foreign ventures oneself.

[26]There is a strong possibility, however, that economic activities will be more formally related to security. For instance, aid to developing countries may come to be considered as non-military defense spending. (Shinohara Hiroshi, interview, December 9, 1974. This also was suggested by Ellingworth, op. cit., p. 31.) Additional developments eventually might include arms sales or much harder positions on law of the sea issues, but would exclude almost any attempts by Japan to forcibly coerce other states. As has been argued throughout this paper, the ability of naval vessels to exercise such suasion is declining, while the introduction of ground troops is out of the question. A nuclear decision might further Japan's general bargaining position, but she would be limited in her ability to use it outside of a deterrent role.

consuming, ever-changing, and vitally important. While they may have had a one-dimensional economic aura in the past, they certainly will become multi-faceted in the future. Should the security ties with the U.S. loosen, the additional burden of balancing her position among the nuclear powers would be added.

In sum, Japan's weaknesses require, and will continue to require, continuous foreign policy adjustments. Even with the constant factor of the U.S. military relationship, a successful course amidst these often-conflicting pressures is a noteworthy achievement, though it could be better presented to the public as such. Should a neutralist option be chosen, she will not be permitted the luxury of a Swiss or Swedish-style aloofness from international entanglements, especially since economics has been elevated to the status of "high politics." Her dilemma is not between international ties or their absence, but rather how to balance the conflicting demands of multiple linkages. Indeed, the problems of Singapore's survival might be a better analogy than Switzerland's perpetual neutrality or Sweden's non-alignment. In time, perhaps, Japan might acquire a reputation for impartiality which would insulate her from some of these challenges, but it certainly will not be within the time frame of this study.

External Changes

The People's Republic of China

Predictions regarding post-Maoist China seem to lie more in the realm of astrology than political science. Some

alternatives, however, include (1) a general continuation of present trends, (2) rapprochement with the USSR, (3) a more belligerent China or (4) a fragmentation of the nation in the course of a power struggle.

It seems evident that the present situation maximizes Japan's flexibility. A tri-lateral structure in the Northwest Pacific offers opportunities for approaching both the PRC and the Soviet Union while reducing her dependence on the United States. The easing of tensions also encourages trade relationships and eases the pressures for defense spending. Washington's recognition of Peking would further institutionalize these developments although it could have unpleasant aftereffects if China then chose to strike against Taiwan.

Much of this flexibility would be lost should the Sino-Soviet dispute be resolved. In this event, Japan might feel the need to increase her own defense effort, but she also would almost certainly be driven back towards the United States.

Similarly, if China became more belligerent, either towards the U.S. or her neighbors, there would be strong pressures for a larger Japanese security role. An armed PRC attack on Taiwan, though less inflamatory than it once might have been, would reverse the relaxation of tensions in the region, at least temporarily. To succeed, China also would have to demonstrate a quantum jump in amphibious or airborne capability which Japan might find disquieting. Certainly it would change the balance

of power in the Senkakus and western Ryukyus. A PRC naval build-up could be another justification for enlarging the MSDF.[27] At the same time, unless the U.S. showed complete indifference, Japan probably would prefer to restrengthen the bi-lateral ties rather than face the People's Republic alone. It is possible, of course, that Peking could try to force Tōkyō to chose between itself and Washington. It even is possible that this might succeed if coordinated with some of the U.S.-Japan strains noted earlier. However, the initiative in such circumstances would remain with Washington, which could maintain the ties if it were willing to make the effort. This gambit also would threaten China with isolation against both the West and the Soviets.

The fourth choice, a fragmented China, would have world-wide implications. The key question for Japan is whether the return to bipolarity in the Northwest Pacific would push her back to the U.S. alliance or whether she would be drawn into the vacuum herself. The only real benefit of the latter course for Japan would be psychological. It is by no means certain, however,

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[27] In the face of competing demands by the nuclear program, a 3 million man army, and an air force and riverine force for the northern border, the "blue water" component of China's navy has done well just to survive. Nevertheless, reports persist in the Western press and technical literature suggesting that the PRC navy may soon try to spread its influence farther afield. Missile destroyers have been built, but there is little that could operate beyond the range of fighter cover. In any case, even if such a decision were made soon, the time lags involved in the intelligence evaluation, decision-making and ship construction would put it well into the 1980s before a PRC build-up was reflected in MSDF force levels.

that she could take China's place even if she wanted to. At the heart of the PRC's credibility as a major power is her ability both to absorb a nuclear strike and to swallow an invading army. Japan can do neither, and her leaders know it very well.

One probable consequence of a sharp decline in Chinese influence would be a stronger Japanese position towards Taiwan and Korea. This would be especially true in the case of seabed resource disputes. However, the relative increase in Soviet power would make the U.S. security ties more attractive. In turn, this would restrict Japan's freedom of action in Southeast Asia. Even if she were tempted to overlook her own weaknesses and play a larger role in the Northwest Pacific, she would be limited farther south to those efforts which did not threaten America's growing economic presence there.

In sum, events in China will be keenly felt in Japan. It is possible that these would spur an expansion of the SDF, or a less conciliatory posture towards her immediate neighbors. But unless Washington were to cut her off completely, Japan would not become significantly more activist in the region as a whole.

The Soviet Union

The future course of the USSR is relatively more predictable than China's. A continued policy of detente on the one hand and friendship and economic cooperation with Japan on the other would facilitate Tōkyō's equidistant diplomacy. But the replacement of the Security Treaty with a Moscow-oriented pact is inconceivable

in the near future. At the same time, Japan's development of Soviet resources will be carefully designed to increase her own flexibility, not simply to substitute one potential source of blackmail for another.

The completion of the second Trans-Siberian rail line in the early 1980s will increase Russia's military potential in the Far East. Without a complete abdication by the U.S., however, any hint of its use would only drive Japan closer to Washington again. The same probably would be true for a general breakdown in detente.

The United States

The U.S. and Japan may drift apart if the axis of confrontation continues to shift from East-West to North-South problems. In case of renewed tensions in the Northwest Pacific, America's reaction will be the key to Japan's response. Neither the Soviet Union nor China would be able to keep her from returning to the West unless the U.S. turned away.

In the meantime, though both Washington and Tōkyō may want to retain some tangible evidence of the U.S. commitment, budgetary and balance of payments constraints could restrict the basing of American units in Japan before too long.[28] In turn, this might provide the occasion for a reevaluation of the Security Treaty

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[28]One estimate of the U.S. base costs is ¥200 billion (about $670 million) annually. Cited by Taoka Shunji, December 30, 1974.

system. A total abolition of security ties would not be in the interests of either side, but some sort of redefinition will be almost inevitable.

Such a shift, by itself, probably would not lead to more emphasis on the SDF, but it could in some areas. Particularly in the logistics field, the more distant the U.S. re-supply forces, the larger the domestic capacity would have to be. Without an increase in tensions, however, few changes would be demanded. Some additional funds might be appropriated as a symbol of resolve, but the unit costs of new construction are so high as to preclude a major expansion of forces without a drastic change in priorities. If anything, it would be the non-SDF component of security spending which probably would be increased.

It is, of course, theoretically possible that an increase in tension might be accompanied by American indifference. Japan's options in such a case would be three-fold: accommodation, an attempt to establish her neutrality, or expansion of the SDF, with a possible re-definition of their roles. A priori it is difficult to predict which course she would follow. A combination of neutrality and enhanced self-defense might be ideal, but the choices would depend greatly on the state of the Sino-Soviet balance at the time. The likelihood of such an abandonment seems remote, however. In Robert Osgood's words:

> . . . There is no American interest in Asia that does not depend on America's central interest in

> maintaining the vitality of its alliance with Japan . . .[29]

Other States

It has been argued earlier that the opinions of Southeast Asian states would not really be a constraint if Japan saw her basic interests threatened. Whether or not they could be a determinant of MSDF deployments is another question. Disturbances in Indonesian waters might threaten the crucial tanker routes. This certainly would produce calls for protection of the ships, but it will be shown later that no amount of harassment could cause enough economic harm to offset the costs of deployments. Moreover, it already has been argued that naval vessels alone are unlikely to quell such disturbances, and it is very doubtful if anyone would be willing to commit any of the other Self-Defense Forces to such work. Finally, given the lack of logistics support, it is not clear that the MSDF ships could operate that far from home. Nevertheless, the psychology of the issue is such that it might stimulate a few token deployments.[30]

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[29]Robert Osgood, The Weary and the Wary (Baltimore: The Johns Hopkins University Press, 1972), p. 91.

[30]Donald C. Hellmann, in Japan and East Asia (New York: Praeger, 1972), argues that the web of economic ties linking Japan to East Asia (including Southeast Asia) inevitably will draw her into regional politics ". . . in ways that ultimately will require a new and expanded security policy." (p. 169). This may well be true eventually, but in part it is predicated on continued rapid economic expansion which seems at best to have been delayed.

Changes and Continuities in Maritime Affairs

Although these arguments mostly seem to point to a maintenance of the status quo, this is by no means the case. Japan will continue to act to maximize her flexibility. Her nuclear power programs; shipbuilding, electronics and aircraft industries; and scientific rocket development have given her the basis of a nuclear option should she so choose. The Security Treaty System has enabled her to concentrate on economic growth for over twenty years.[31] Even the SDF reflect this propensity for flexibility since their force structures, for the MSDF and ASDF at least, consistently have stressed future potential at the expense of current capability.[32] Similarly, the whole thrust of resources diplomacy is directed to the maximization of alternatives.

This stylistic continuity, however, may encompass major substantive changes. For instance, new resource finds, technological breakthroughs, local wars, nationalizations or other discontinuities may alter the relative importance of raw materials suppliers. (U.S. and European markets, however, almost certainly will remain central to Japan's trade.) Increased contacts with the socialist countries may have far-

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[31]Whether or not this was the result of a deliberate decision in 1947, as Weinstein argues, or through the lack of one, as advocated by Auer, does not alter the result.

[32]See Auer, op. cit. (note 5-34), p. 145, and Hughes, op. cit. (note 5-34), p. 388.

reaching consequences as the PRC and USSR enter into economic competition and interdependence with the capitalist world. Such topics quickly will lead too far afield for this study. One area which can be investigated, however, concerns extended claims to ocean jurisdiction.

A Twelve Mile Territorial Sea

Having agreed in principle to a universal twelve mile limit,[33] Japan will extend her own three mile territorial sea before very long. Aside from the fact that the area to be defended has been increased severalfold,[34] the shift will bring the Tsugaru Strait (between Honshū and Hokkaidō) completely within Japanese jurisdiction. This poses two problems.

The first is whether or not the strait should be governed by a regime of free transit, or one of innocent passage. The latter, it is argued (usually by defense personnel), is more appropriate on national security grounds because of the limitations which it would pose on Soviet naval and air operations (see Chapter Three).[35] The mobility of U.S. forces would not be

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[33] Tōkyō Shimbun, April 23, 1974.

[34] From 58,650 sq. km. to over 240,000 sq. km. 3-mile data from U.S. Department of State, Office of the Geographer. 12-mile figure estimated from linear extensions (4x) in some areas plus greater enlargements (up to 16x) around outlying islands.

[35] The Eastern Tsushima Strait (between Iki Island and Shimonoshima) is 25 miles wide and thus there still will be a mile-wide corridor of the high seas in the center. The Soya Strait (between Hokkaidō and Sakhalin) is less than 24 miles,

affected by virtue of bilateral agreements. Opponents of this position point to Japan's call for free transit[36] (at least for surface ships) in all other straits, and the difficulty (and danger) of doing anything about Soviet submarines and aircraft if they did not comply with innocent passage provisions.[37] It seems likely that a regime of free transit eventually will be decided on for the Tsugaru Strait.

The second problem involves Japan's three non-nuclear principles.[38] A warship carrying nuclear weapons in territorial waters presumably would violate the restrictions on the importation of such devices. However, if Tsugaru Strait traffic is not to be restricted, some compromise must be made on the principles themselves.

By rights, the broadened territorial sea should justify some increased expenditures for its protection, at least for

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but lies partly within Soviet jurisdiction. The Western side of the Tsushima Strait is 23 miles wide and would be overlapped by Japan and South Korea.

[36] Yomiuri, August 3, 1974.

[37] In the event of hostilities, Japan would have an obligation as a neutral power to ensure that belligerent warships did not violate her waters. Norway's failure to enforce such rights led in part to the Altmark affair, while Uruguay's insistence on them resulted in the scuttling of the pocket battleship Graf Spee. Whether or not Japan would choose the latter course and risk Soviet wrath remains to be seen.

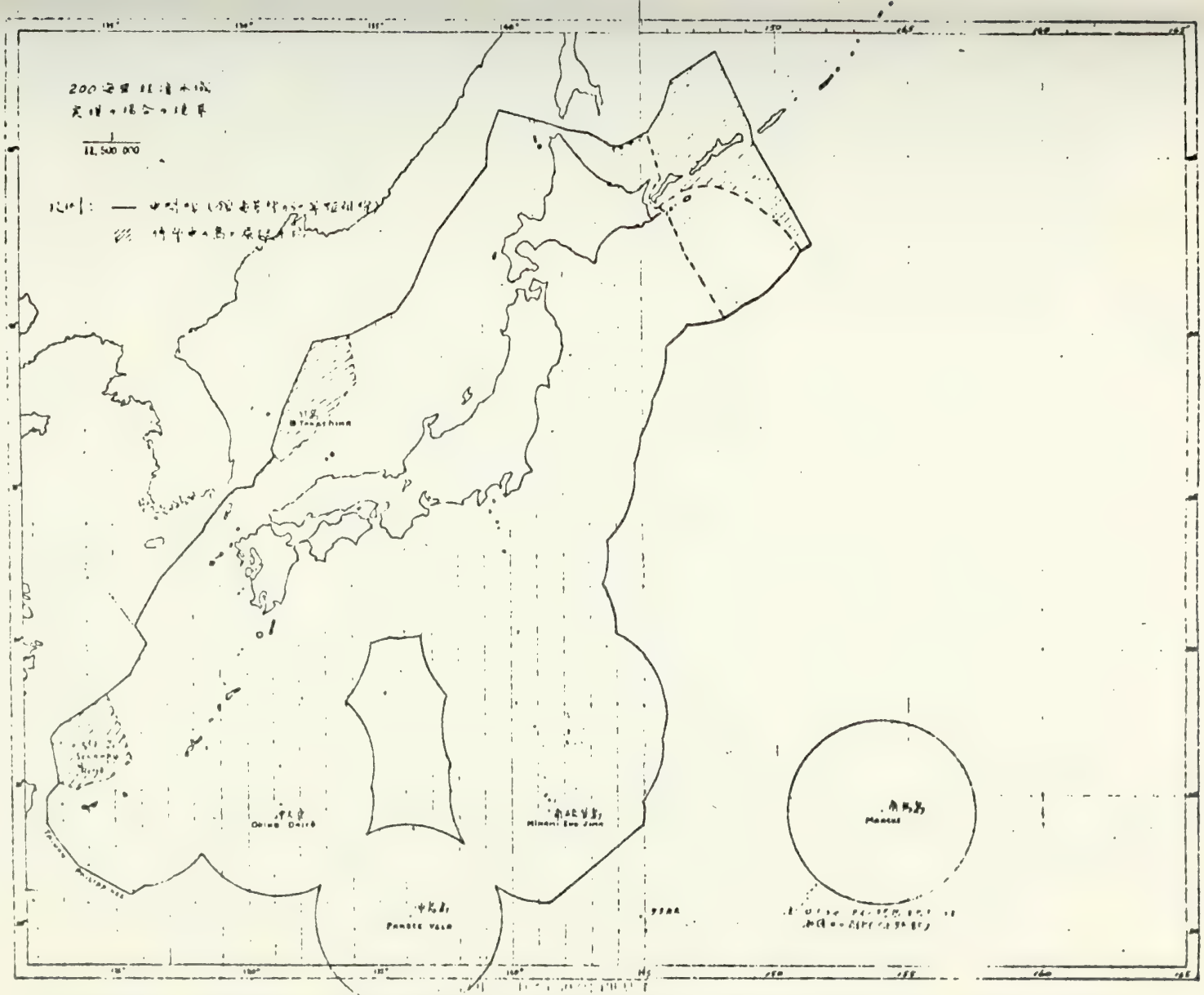
[38] See Mainichi, August 8, 1974. The three principles are that Japan will not possess, produce, or permit the introduction of nuclear weapons into her territory.

improved surveillance systems and patrol craft. It probably will not, however. In any case, the additional requirements of the territorial sea will pale before the demands of the 200 mile economic zone (see below). The nuclear weapons question does not affect the MSDF directly, but any devaluation of the three non-nuclear principles (some now are calling them the 2.5 principles) may simplify future changes in attitude.

200 Mile Economic Zone

Although Japan consistently has opposed the 200 mile concept, it is almost inevitable that she will follow world trends and declare one herself. The complications introduced by a proliferation of strictly 200 mile claims in the Northwest Pacific would be formidable, as shown in Figure 7-1. Under any set of baselines, Japan will have oceanic borders with The Philippines, Taiwan, the People's Republic, South Korea, North Korea and the USSR. If the Northern Marianas become an American territory, she will add a boundary with the U.S. as well. Moreover, 80 percent of Japan's distant-water fish catch (40 percent of her total yield) would be within the zones of Canada, the U.S., the USSR and the PRC.

To these issues also must be added the difficult problems of the Senkaku islands ownership, whether or not various rocks and islets can be used for baseline measurements, the use of median lines or continental shelf geomorphology as the basis for delimitation and the status of the Soviet-occupied northern



A 200-MILE JAPANESE CLAIM SHOWING DISPUTED AREAS (Hatched Regions in Dotted Lines)

islands as the source of a 200 mile claim. The four hatched (disputed) regions on Figure 7-1 total over 340,000 square kilometers, more than 90 percent of Japan's land area. Figure 7-2 illustrates the unresolved boundaries on the East China and Yellow Sea shelves. Because of overlaps, these ocean issues also are tied to the hostilities between Taiwan and the PRC and between North and South Korea. There is not space to examine these arguments in detail,[39] but a greatly increased potential for disagreement certainly will exist when the zones are designated.

It is this development (if any will) which may bring the greatest changes for the MSDF and, perhaps, for the ASDF as well. The requirements for enforcing one's jurisdiction in a 200-mile economic zone are much more complicated than in a twelve-mile territorial sea. Not only is the area covered much larger,[40] but existing radars also inadequate for monitoring even 20 or 30 miles off the coast. Besides providing issues in which the MSDF might get involved, the zone also will require more MSA patrol craft.

Though officials recognize that Japan would be better off in a free trade environment, the economic zone could come to have

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[39] See Park Choon Ho, "Oil Under Troubled Waters: The Northeast Asia Seabed Controversy," Harvard International Law Journal, XIV (Spring 1973), pp. 212-260.

[40] 3,862,000 sq. km. vs. about 240,000 sq. km.

Figure 7-2

Disputed Seabed Areas on the East China and Yellow Sea Continental Shelf

great popular appeal. After all, the area of a 200-mile claim would be more than ten times the present area of a country which always has been concerned about its lack of space.

It is too early to tell whether or not zone-related disagreements will be resolved by means other than diplomacy. While no formal protest was made, the 1974 Chinese action in the Paracels caused private concern within the Gaimushō.[41] Had China extended her reach to the Spratlies, fears of a similar gesture in the East China Sea disputes (notably the Senkakus) would have been intensified. For the moment, however, the Senkaku issue officially has been shelved between Tōkyō and Peking.[42]

All these disputes, of course, will be submerged in the larger framework of Japanese diplomacy. As rich as the East China Sea continental shelf may be,[43] it has been less important so far than improved ties with the People's Republic. By the same token, the emotional Northern Islands issue has not prevented a warming of relations with Moscow. Resentment over ever-more-severe fishing limitations by the U.S., Canada and the Soviet Union also has been kept in perspective. In the future,

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[41] See Jay H. Long, "The Paracels Incident: Implications for Chinese Policy," Asian Affairs, 4 (March/April 1974), pp. 229-239.

[42] Agence France Presse reported (October 1, 1972) that Chou En-lai had dismissed them as "a few fly-specks on a map" during his meeting with Prime Minister Tanaka.

[43] A 1968 ECAFE survey pronounced it as potentially "one of the most prolific oil reserves in the world." See Park, p. 213.

it is probable that Japan will intensively develop the resources in her own area and avoid issues provocative to the superpowers. Whether or not she will be so deferential to Korea, Taiwan or the Philippines is questionable.

Oceanic States and the "World Lake"

Figure 7-3 is a reproduction of part of a State Department chart showing the area under Japan's jurisdiction should the seas be entirely divided on the basis of median lines.[44] Even before this ultimate erosion of the high seas was reached, however, extensions of national ocean claims would create a group of geographically advantaged states with control over especially large areas of the seas. Malta's Ambassador Pardo has termed these Oceanic States, and has suggested that they may come to have a considerable community of interest linking otherwise disparate stages of economic development or social systems.[45] This may well be the case in the future, but even if such a division could be arranged in the period of this study, it will be many more years before Japan is likely to forge major diplomatic ties based on ocean interests alone. In the Northwest Pacific, such an area would not add many more problems than the

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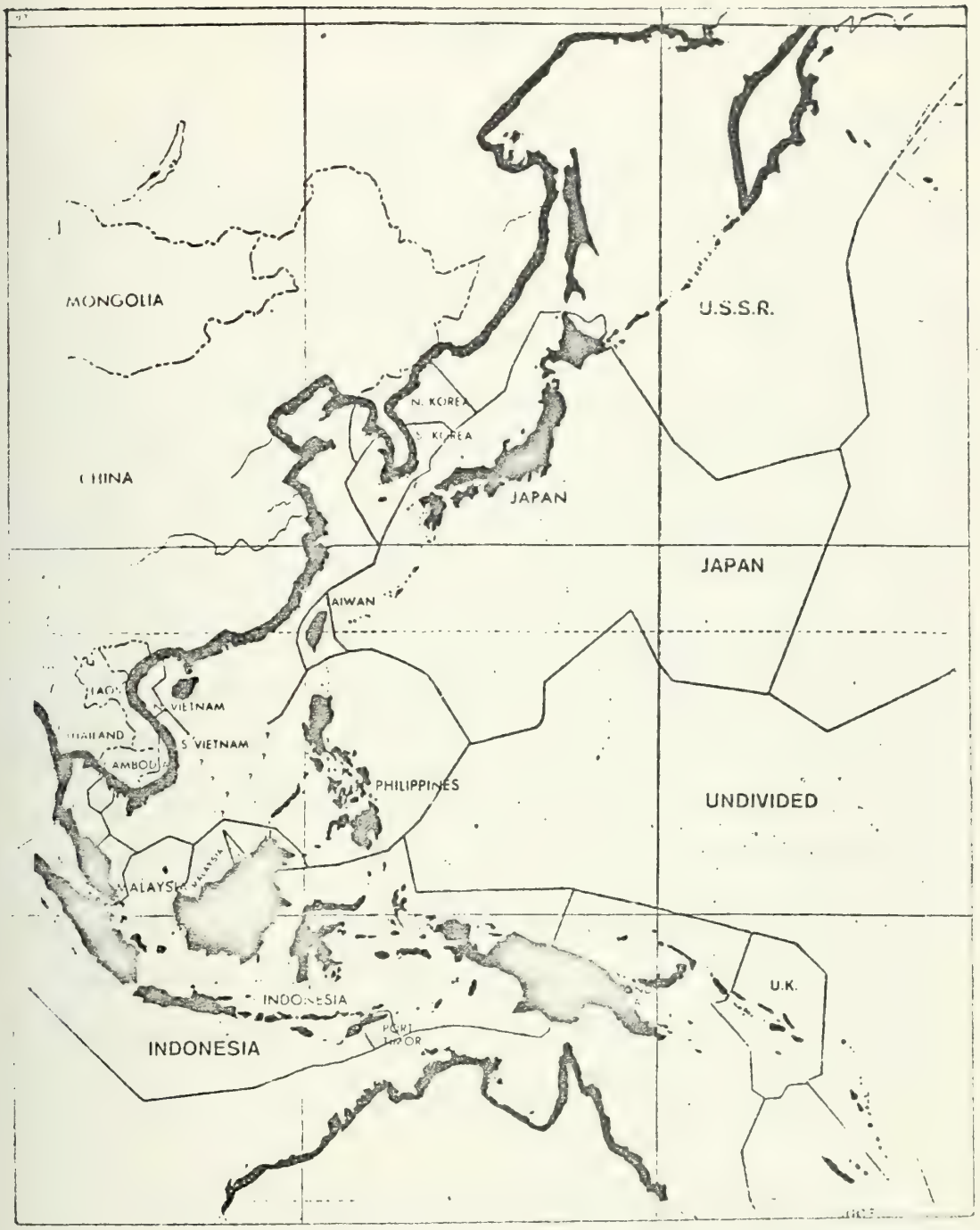
[44]U.S. Department of State, Office of the Geographer, "World Lake" Chart.

[45]Some of the more prominent are: The U.S., the USSR, Canada, Australia, New Zealand, Britain and France (by virtue of distant islands), Chile, Mexico and Brazil. Japan ranks approximately 10th in ocean area under such a regime.

Figure 7-3



Office of the Geographer
U.S. Department of State

JAPAN'S SHARE OF A PARTITIONED OCEAN

200 mile zone, though Japanese fishermen would suffer.

Summary

There is no compelling evidence to support forecasts of a major change in the domestic political constraints on the MSDF during the next five years or so. Beyond that there is more uncertainty, but little indication of what the SDF might be used for even if they were unrestricted. Even were commitments to be made to UN peacekeeping forces, the budgetary limits show no signs of relaxation. Indeed, the multi-nationalization of Japanese shipping (along with that of most other nations) may reduce support for the MSDF's merchant marine protection even further.[46] In a severe recession, some defense construction might be used for pump-priming, but this probably would not be significant. If the decision were taken to permit foreign arms sales, the lowered costs from longer production runs might ease some SDF procurement problems but, again, its influence would be marginal. A U.S. pullback probably would dictate a logistical strengthening, and perhaps some increased appropriations. But there are no signs that the MSDF would be used to fill part of the vacuum. If any stimulus does arise for an increase in MSDF

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[46]Of course, the reverse argument also could be made, namely that since Japan could only count on her own dwindling number of ships in time of emergency, she could not afford to suffer heavy losses and thus should increase her sealane defense capabilities. Nonetheless, bureaucratic and political considerations make it doubtful that this view would prevail.

capabilities, short of a drastic change in the international situation, it may be from ocean resource zone extensions.

The hypothesis that emotionally-based demand for a larger world role will spur a defense build-up also is tenuous. Unless an immediate threat arises in the Northwest Pacific, diplomacy will continue to be the focal point of Japan's security measures.

PART III

THE SEA AND JAPAN'S STRATEGIC INTERESTS

THE SEA AND JAPAN'S STRATEGIC INTERESTS

Introduction

The relationship between seapower and Japan's strategic interests can be approached in at least two ways. The first is the concept that Japanese security depends on a stable balance of power on three levels--global, regional and local. The second is keyed to the versatility of naval forces in meeting or deterring a variety of threats, and to the potential for leverage inherent in non-military ocean activities. The distinction also must be made between actions designed to exert pressures on other states, and those meant to reduce one's own vulnerabilities to such pressures.

This section will consider some ways in which Japan can use the seas to promote or protect the interests outlined in Chapter Five. The general roles which the MSDF can play on each of the three levels will be examined, followed by more specific discussions of force mixes. The constraints and their evolution outlined in the previous chapter will be considered to apply, but sometimes will be relaxed for the sake of argument. A final chapter will be devoted to Japan's commercial seapower.

Chapter Eight

THE MILITARY DIMENSION - PART I

GLOBAL AND REGIONAL INTERESTS

At the present time, any discussion of the MSDF's roles (indeed of any part of Japan's external security) must consider the United States as well. These calculations include at least four questions:

1. What are Japan's interests on a particular issue, and does she have the ability to defend them by herself?

2. If not, do U.S. and Japanese interests coincide?

3. If they do, does the U.S. have the capability and, just as importantly, the will to act?

4. If the second and third conditions are satisfied, what contributions can Japan make to the U.S. effort? If they are not, are there other powers to which she can turn?

One may question the wisdom of basing plans on such continued reliance on the U.S., but it is a current fact of life.

The Global Balance

Japan's interests on the global level lie in the prevention of a general war and in the stability of the international climate. She will be unable to secure them by herself. On the whole, however, they coincide with those of the United States, especially

on the prevention of nuclear war.

By almost any projection, Japan's armed forces will not have a major impact on the global military balance within the next 10-15 years. Even were a decision on full-scale nuclearization to be made today, it is doubtful that anything more than a force de frappe could be created within this time frame.[1] Had the great economic growth rates of the 1960s been sustained, it might have become possible to offset this military weakness with other forms of pressure. However, the world-wide shortages, uncertainties and instabilities which loom in the future are poor conditions for Japan's prosperity. Neither does she have large reserves of food or raw materials to offset international imbalances and promote moderation. Japan doubtless will continue to play an important role as a major industrial nation, but her image as an emerging superstate with the key to global equilibrium no longer is credible (if it ever was).

Without becoming enmeshed in the debates over "How much is enough?", or whether or not mutual deterrence is a sane way of avoiding the holocaust, it is certain that Japan's sense of insecurity would be increased if the effectiveness of the U.S. strategic forces were in doubt.[2] In any case, there is nothing

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[1]For instance, after more than a decade of the French and Chinese weapons programs, each reportedly still had fewer warheads than the U.S. has on one (MIRVed) Poseidon submarine (160 to 224 according to published accounts).

[2]This is not simply the question of whether or not the

that Japan can do about it except to hope that America's efforts to preserve the balance on her own account will be adequate.

Both nations also have a stake in creating a stable international climate, but Japan's need for such stability is greater, while her ability to promote it is less. This asymmetry contains the seeds of several possible differences, summarily noted in Chapter Five. In the first place, actions which America takes to stabilize local and regional conflicts may be seen as escalatory by Japan.[3] In the second, Washington's ability to withstand pressures involving resources and energy is much greater than Tōkyō's. (Indeed, the U.S. itself may be seen as a primary villain in a crisis over foodstuffs.) This is related to the third point, which is that the U.S. has opted for strategies to maximize its independence from resource suppliers while promoting interdependence in the industrialized world. Japan, on the other hand, has tried to increase its interdependence with developed and developing countries alike. So long as U.S. policy continues to consider the weaknesses of the Western alliance as a whole, Japan will be protected by those even more vulnerable than herself. But she could pay dearly for her previously close ties

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U.S. "nuclear umbrella" applies to Japan. As noted earlier (p. 159), the "nuclear umbrella" issue is associated with the continued utility of the Security Treaty. Without the treaty there still might be an effective "umbrella" but without a credible U.S. deterrent neither formal nor informal ties would provide much protection.

[3]Witness the alarmed Japanese reaction to the U.S. military alert during the Yom Kippur War.

should Washington retreat to a more nationalistic stance.

In point of fact, Japan's economic policies now are able to affect the prosperity, or at least the balance of payments, of most of her trading partners. Such strength implies an influence on global stability as well, though it is much less easily assessed or controlled. Nevertheless, the military elements of global peacekeeping will remain the province of foreign forces.

For whatever purpose, American seapower can bring to bear the fleet ballistic missile system (FBM); a flexible array of general purpose naval forces; a limited, but increasingly modern merchant marine; and a number of technologies for extracting food and energy from the seas.

The FBM is, and will remain,[4] one of the most secure parts of the strategic balance. The U.S. merchant marine, progressive though it may have become, will not play much of a role in global stability. Advanced maritime technology may be stabilizing if it can provide distributable surplusses of food, resources or energy. If it is used simply for the benefit of the industrialized countries, its effect will be neutral at best. In either case, its impact probably will be felt only gradually over the next few years.

The key issue, then, is the degree to which American

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[4]See Tsipis, et al., The Future of the Sea Based Deterrent, op. cit. (note 1-45), pp. 3-9.

general purpose forces can, or will, support Japanese interests. In the global context, this boils down to how much such naval power actually contributes to stability. A definitive answer, of course, is impossible, but it has been argued in Part I that the absence of major power naval forces has led to disorder at sea in the past. However, the rising costs of technological sophistication have reduced the numbers of ships available for peacekeeping roles. Moreover, unless some dramatic event occurs to re-establish the political credibility of Western warships, their impact on coastal states will decline even when they can be present.

Thus, should present trends continue, the U.S. Navy's general purpose forces will become less and less able to maintain order on a global scale. In turn, this would reduce the incentive for Japan to build her own naval force to take up the thankless mantle, even if the domestic situation allowed it.

On the other hand, if the U.S. acted successfully to restore the efficacy of gunboat diplomacy, the choices would be more difficult. In the short run, American military action against either resource-rich states or oceanic claims could subject Japan to severe pressures through embargoes or retaliatory terrorism unless she publicly broke with the U.S. Should that happen, calls for a naval buildup could develop since (a) the heretofore all-important security links with Washington might no longer be credible and (b) the example of using force to control

resources might have been made attractive as a last resort. Although her growing dependence on increasingly diverse regions would make it impossible for Japan to pursue such a policy successfully, its advocates might arise nonetheless.

Should an American campaign fail, an even more ambiguous situation could result. The apparently diminished utility of distant-water naval forces would have to be weighed against the loss of reassurance which would accompany the break-up of the Security Treaty.

In either case, however, if the basic relationship could survive the short-term stresses (perhaps through resource-sharing), there would be little incentive for naval expansion. Either someone else would be doing the peacekeeping already or it would be evident that no one could.

This discussion has considered neither the probability nor the propriety of such actions from the U.S. point of view. The point simply has been to note possible Japanese reactions. The prospects that others might execute such a policy also have been discounted, mainly on the grounds of capability.[5]

Regional Balances

The Japanese usually think of their regional concerns only within East Asia and the Western Pacific. In point of fact, they

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[5]The question of the resource-related disputes in the economic zones or along the East China Sea continental shelf will be examined later.

also depend on stability in other regions as well, notably the Indian Ocean, and, increasingly, Latin America. (See Tables 5-1 to 5-3.)

Japan's interest in these areas typically involves (1) the acquisition of raw materials, (2) the maintenance and expansion of markets, (3) the safe transport of exports and imports and (4) the containment of regional disputes. Her commercial seapower can support the first two objectives. Naval forces may be necessary, though not sufficient to achieve the last two goals.

Although the MSDF now is restricted to training squadron visits outside of home waters, this may not be so in the future. Japan's regional security options include the development of enough naval power to act as a surrogate for the United States in the Western Pacific. Alternatively, she could totally disavow such involvements and abolish the American presence. In between are a variety of choices, to be discussed below.

Options Involving the United States

(1) The continued provision of bases for U.S. Forces (Western Pacific only)

The deployment of extra-regional warships for stabilizing regional disputes usually has all the disadvantages associated with global peacekeeping. In an area such as the Northwest Pacific, however, where the interests of three nuclear powers and Japan converge, America's ability to introduce general purpose naval forces can be genuinely balancing. Moreover, this

interest extends throughout the region in so far as neither Japan nor the United States would welcome a hostile presence or a state of turmoil astride the gateways to the Indian Ocean.

The availability of Japanese bases greatly facilitates U.S. operations in the Northwest Pacific, but the Japanese themselves have reservations about the extent of America's activities. The contentious points have been the "Far East" clause of the Security Treaty and the system of "prior consultations."[6] The Vietnam War raised questions about the geographic scope of permissible American operations. Reports of nuclear weapons aboard U.S. warships have brought doubts about Washington's compliance with consultation agreements. So long as the bases are used to counter Soviet or Chinese pressures on Japan, or are seen to deter a Sino-Soviet conflict, there will be few limits on America's freedom of action. However, should Japan be used to support operations related to a Taiwan-PRC or Korean conflict there is likely to be a serious domestic outcry. This also is true for possible outbreaks elsewhere in Asia, although neither the Japanese reaction nor the U.S. need for the bases would be as strong.

In the past many members of the LDP have supported U.S.

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[6]The Far East clause stems from Article IV of the Security Treaty. The consultation formula was contained in an exchange of notes between Washington and Tōkyō dated January 19, 1960. Some of the resulting problems have been outlined by Emmerson, op. cit. (note 5-33), pp. 82-89.

actions in private more strongly than they have been able to do openly. But it is not certain that such support will continue as younger politicians come into positions of leadership. This is even more true if some sort of coalition government develops.

Thus, America might find itself basing contingency plans on facilities which could become unavailable when they were most necessary. In fact, the base right agreements may come to have little meaning. So long as the two countries remain close, U.S. ships will have access to Japanese ports and repair facilities in peacetime. In wartime, if Japan's interests are threatened she would ask for assistance and the U.S. probably would accept. Should Japan not see her interests in jeopardy she would probably refuse landing rights or ship entry in the same way that much of Europe did during the Yom Kippur War.

From the U.S. military standpoint, of course, it would be better to keep the Japanese facilities even though they will have to be consolidated rapidly. Broader consideration, however, might suggest a retrenchment to the Marianas or the Philippines.[7] A full discussion of this point would extend far beyond the scope

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[7]See Chapters Five (p. 160) and Seven (p. 242). One important counter-argument to such a move is that the return of Okinawa has made it very difficult for the U.S. to get to Korea without crossing Japanese airspace. Indeed, were both the Philippines and Japan to declare a 200-mile territorial sea, it also could become impossible to get to Taiwan legally without permission. Some of the benefits of an American pullback are given in James H. Webb, Jr., Micronesia and U.S. Pacific Strategy: A Blueprint for the 1980s (New York: Praeger, 1974).

of this study. As argued in Chapter Seven, however, such a withdrawal probably would not lead to a major expansion of the Self-Defense Forces, especially if it were done tactfully and with adequate consultation. This is particularly true if America explicitly re-stated its commitment to Japan's security in the process.

(2) Developing the SDF to free U.S. forces for other duties (primarily Western Pacific, but also the Indian Ocean in a more limited sense).

This could be accomplished by having the MSDF: (a) take over some of the reconnaissance and surveillance duties in the Northwest Pacific, (b) be able to extend the period in which Japan could resist direct military pressure to permit the wider dispersal of American assets, (c) become more closely integrated into the U.S. force structure, for instance by exercising more frequently with available U.S. units, or even by providing escorts for carriers where possible, (d) develop into a regional force capable of acting as a surrogate peace keeper should the need arise.

In the present domestic climate only the first and second alternatives are feasible, although the conduct of more joint training might be beneficial and not too sensitive.

Since the MSDF would like to improve its intelligence apparatus anyway, it probably will acquire more capability for acoustic surveillance and surface ship tracking in the next few

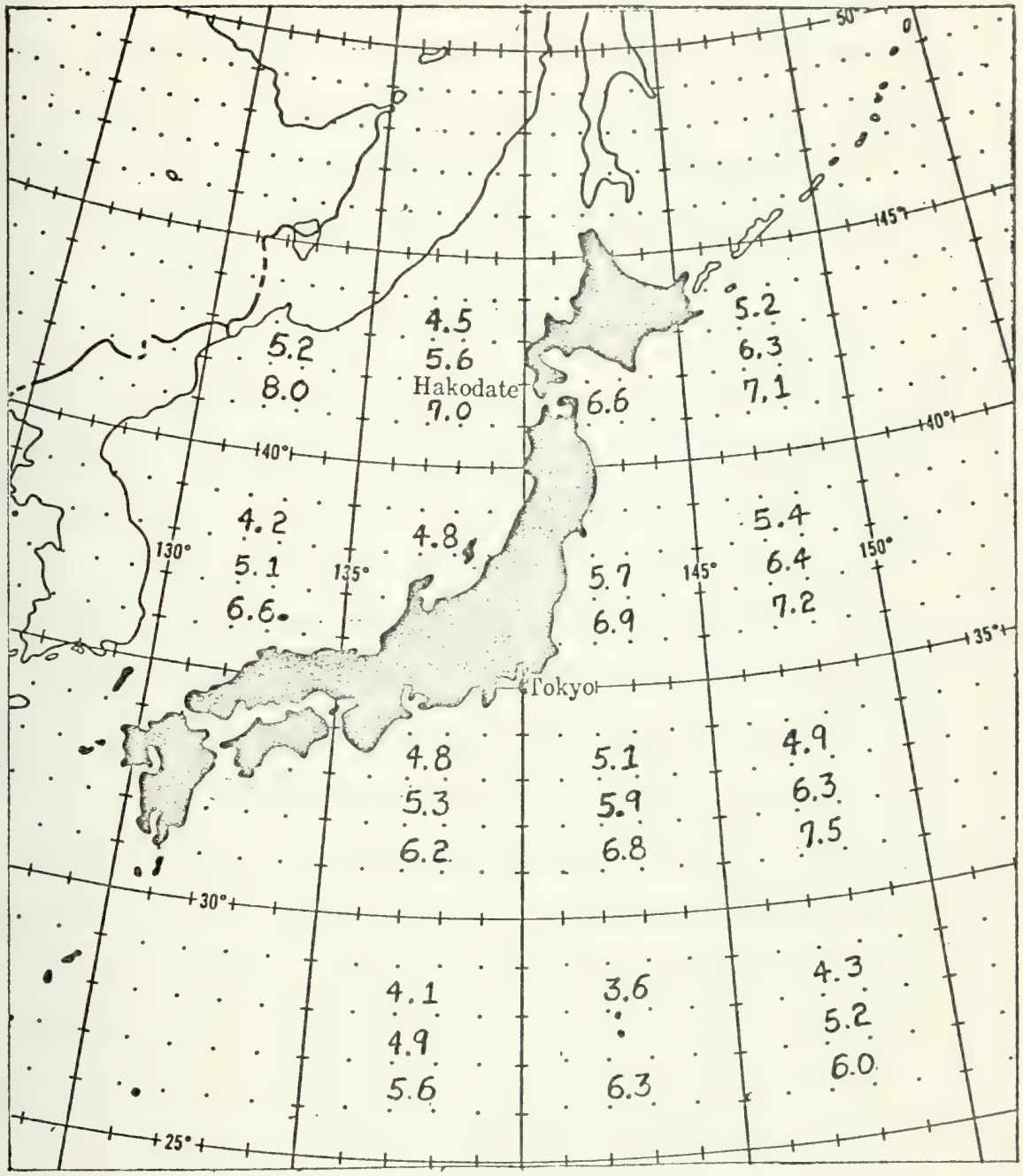
years. In turn, this information could be made available to the United States. Although the remote sensing technology outlined in Chapter One may reduce American reliance on foreign sources for strategic intelligence, the need for identification and timeliness will continue to require as many tactical inputs as possible. Given the amount of cloud cover in the Northwest Pacific (see Figure 8-1), some low-level reconnaissance platforms could be very useful.

Since no major acceleration is seen in the rate of Japan's defense build-up, the improved capabilities of the SDF, per se, are unlikely to enable the U.S. to redeploy many of its units. Some problems of the defense of Japan itself and suggestion for SDF improvements will be found in the next chapter.

The integration of Japanese ships or aircraft into American operational units will be politically impossible without a drastic change in the threat situation. Indeed, it will take concerted efforts just to keep the military relationship from drifting apart, much less to strengthen it.

In the final case, the previous chapter already has concluded that the next decade will see no compelling domestic pressures for a geographically expanded MSDF role. Even were the defense perimeter pushed outward, a more activist form of naval supremacy is unlikely. As Michael MccGwire has noted: "The flexibility of seapower . . . can only be successfully exploited when there exists a surplus of capability over one's

Figure 8-1



NORTHWEST PACIFIC CLOUD COVER (in tenths)

Top figure in each block is the average for the clearest month.
Middle figure in each block is the average for all months.
Bottom figure in each block is the average for the cloudiest month.

Source: H.O. 97. Sailing Directions for Japan.

essential defensive requirements . . . ."[8] Japan will not have such a surplus in the near future. With the exception of Singapore, it also is hard to imagine many Southeast Asian countries which would welcome a Japanese naval presence in the same period, defensively oriented or otherwise. Though this would not be a binding constraint in itself, it would reduce the incentive for such developments from Tōkyō's point of view.

Even should it become theoretically attractive, a serious drawback in attempting a wider naval role is the historical generality that maritime or air forces rarely have been decisive by themselves. It would be one thing to extend the MSDF to play a more visible part in the Western Pacific. It would be quite another to develop the intervention capability which might be necessary to make that presence credible. On the other hand, it was suggested in Chapter Four that such pointed calculations rarely enter into the evaluation of naval presence, at least among the persons interviewed by the author in Southeast Asia. Moreover, the real significance of a distant-water MSDF deployment would be as a reflection of a major political change within Japan itself. Under such condition of uncertainty, the influence of Japanese units might be greater than would be warranted by their actual capabilities, at least in the beginning.

Leaving aside the development of a regional navy, it is interesting that none of the above suggestions would require

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[8]MccGwire, op. cit. (note 1-54), p. 8.

major changes in the current composition of the SDF (the second point, for instance, could partly be accomplished by improved logistics). As will be discussed later, Japan's present force structure may not be best suited to the unilateral protection of her own interests, but it is nicely complementary to the U.S. Navy.

Options Involving Countries other than the U.S., or Multi-lateral Ties

(1) Cooperate with the PRC or USSR (Western Pacific)

Both the USSR and the PRC could profit greatly from maritime cooperation with Japan. Indeed, each might gain more from such assistance than the United States. Were Japan's ties with the U.S. to loosen, she may well seek closer relations with her mainland neighbors, particularly with China. Commercial maritime associations may grow rapidly. However, for either socialist country to play an active part in regional peacekeeping and for Japan to align herself with one of them would require domestic and international transformations which would completely alter the Pacific balance. So far there is little evidence of such a shift. Moreover, the anti-communist sentiment noted in Japan's leaders extends to most other levels of the society as well. Recent election gains by the JCP have been seen more as an anti-LDP vote than as a pro-communist one. While this would not dampen Japan's general desire to improve relations, it would pose serious obstacles to the conclusion of closer ties, especially in the military sphere.

(2) Japanese participation in UN Peacekeeping Operations (any region)

The political problems of Japanese manpower contributions to UN forces were noted in Chapter Six. Although such participation would seem a simple way to begin Japan's demonstration of increased responsibility in international affairs, the fact that it would involve the dispatch of ground troops will continue to be a major stumbling block. If some form of maritime observers (perhaps for fisheries disputes) could be arranged, it might find an easier acceptance (MSA officials could be sent, for instance). If it were outside Asia, so much the better.[9] While such arrangements may seem unlikely at present, they may become less so if law of the sea disputes proliferate.

(3) An Asian Multi-Lateral Force (Western Pacific)

In 1973, Prime Minister Lee Kwan Yew of Singapore proposed that Japanese warships might join a multi-lateral task force in Southeast Asian waters. Although Lee was concerned mainly with a balance of major power fleets, suggestions also have been made that some sort of ASPAC or ASEAN squadron might be feasible, along the lines of NATO's Standing Naval Forces.[10]

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[9]This discussion is limited to personnel. The MSDF or MSA also probably would be reluctant to part with a scarce ship, although the icebreaker Fuji has been dedicated to international Antarctic research for several years.

[10]STANAVFORLANT consists of about four destroyers or frigates each drawn from one of the NATO fleets. It has been in operation since January 1968, but is more of a political

Within ASEAN itself, such an organization might have some merit, at least symbolically. There even is an operational foundation. Thai and Malaysian units have conducted joint anti-smuggling patrols along the Kra Isthmus. Indonesia and Malayesia also have cooperated in the Straits of Malacca. But an ocean-going standing force is improbable. For one thing, Singapore has no ships larger than missile patrol boats. Thailand and Malaysia each have one modern frigate, the fleet flagship in each case, which they would be reluctant to commit to detached control. For another, there are a number of serious ocean-related disputes among the member states--Malaysia (Sabah) has at least tacitly supported the Moslem insurrection in the southern Philippines around the Sulu Sea, shelf-locked Singapore differs with her neighbors on the control of the Straits of Malacca, and there are several unresolved seabed delimitation issues.

Even should an ASEAN force materialize, it is doubtful that Japan would be invited to participate.

The anti-communist oriented ASPAC has become moribund with the advent of detente.

Perhaps the most interesting arrangement (and the most compatible from a philosophical and material standpoint) would be MSDF cooperation with Australian or New Zealand units. One might even speculate on Japan's taking Britain's place in the Five

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showpiece than an effective combat force. In May 1973 a Standing Naval Force Channel was activated, and there is hope of a similar unit in the Mediterranean.

Power Defense Agreement (FPDA) for Singapore.

It must be reiterated that this is pure speculation. There is no evidence pointing to such cooperation at present.[11] As noted earlier, the first signs of Japanese participation in international peacekeeping probably would come through the UN outside of Asia. But the possibility of de facto maritime arrangements with other states cannot be excluded.[12]

(4) Arms Sales

Present limitations on arms sales stem from two sources: (a) the Government's 1962 position that weapons cannot be exported to (1) countries at war, (2) Communist countries, or (3) countries under UN sanctions; and (b) the general political sensitivity of military matters in Japan. A weapon officially has been regarded as "a tool for killing and injuring and for direct combat purposes,"[13] but the interpretation is subjective. For instance, a jeep with a gun mount is a weapon, and cannot be

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[11] Bix, "The Security Treaty System," op. cit. (note 6-27), quotes a report of ". . . naval maneuvers with Australian and Malaysian warships during the summer of 1969 . . . ." Just what these consisted of is not clear. There are, however, few references to them in revisionist writings which would hardly be the case had any sort of important ties been developed.

[12] The U.S. Navy, for instance, might act as an intermediary, i.e. joint U.S.-Japanese exercises held simultaneously with ANZUS training.

[13] Given in the Diet, March 23, 1972. Quoted by an official of the Equipment Bureau, JDA, in an interview, July 25, 1974.

exported. Without the mounting, it may be. Such equipment as Japan has sent overseas generally has been oriented towards police work, but some have been questioned. One of the most controversial contracts involved the 1971 sale of helicopters to Sweden.[14]

Nearly all Japanese who were interviewed regarded the prospects for a future expansion of arms exports as doubtful. Certainly the defense production sector of Japanese industry is in no position to initiate such a program on its own.[15] But the profitability of such a trade might promote it nonetheless. This is particularly true if a major arms market developed in East or South Asia. In 1974, for instance, it was reported that several European firms were considering the establishment of weapons-related plants in Singapore.[16]

In the past twenty-five years there have been adequate opportunities for Japanese exports in other fields. Should the

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[14]Although Sweden had requested them for police work, they were based on a U.S. military design.

[15]Defense production in Japan in 1973 accounted for about .4% of GNP.

[16]Several sources indicated that the Dutch Fire Control System manufacturer Hollandse Signaalapparaten would establish a factory in conjunction with a Phillips Electric venture already in operation. The Swedish and Swiss firms of Bofors and Oerlikon also were ostensively interested in a Singapore-based operation. These have not yet been verified however. The Singapore Shipbuilding Company builds fast patrol boats with assistance from Lurssen of West Germany. Similar craft also are constructed by a subsidiary of Britain's Vosper Thorneycraft. All data derived from interviews conducted in Singapore between May 28 and June 4, 1974.

economic climate become particularly severe, however, this heretofore forbidden source of foreign exchange might become more attractive. The production of such equipment in overseas subsidiaries also might become politically acceptable, though it is not at present.

The naval component of such sales could range from warships to electronic equipment such as radars or radios which are common to all vessels.[17] Japanese and subsidiary yards have, in fact, built a number of vessels which appear on foreign naval rosters. They are listed in Table 8-1.

Note that most of these ships pre-date the 1962 export restrictions. Even for those that do not, such designs as patrol craft can be considered as being for internal security (police) rather than external security (naval) duties. Moreover, any armament now on board almost certainly was mounted after leaving the shipyard. One measure of the scrupulousness with which the principles have been observed was the 1965 decision to turn down an Indonesian request for landing craft because of Konfrontasi with Malaysia.[18]

Marine-related defense production for export probably will continue to be concentrated in shipboard equipments, such as

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[17]The Republic of China (ROC) navy, for instance, uses Japanese navigational radars on some units. ROC naval officer (who requested anonymity), interview, May 8, 1974.

[18]Cited in Matsueda and Moore, op. cit. (note 7-21), p. 619.

Table 8-1

FOREIGN NAVAL CONSTRUCTION BY JAPANESE SHIPYARDS

Year	Country	Type Ship	Number	Builder
1954	Brazil	Transport	2	Ishikawajima
1955	Taiwan	Landing Craft (LCU)	5	Ishikawajima
1956	Brazil	Transport	2	Ishikawajima
1957	Taiwan	Torpedo Boats (PT)	2	Mitsubishi
1957	Brazil	Survey Ship (armed)	2	Ishikawajima
1958	Philippines	Command Ship	1	Ishikawajima
1961	Indonesia	Landing Ship (LST)	1	n.a.
		Submarine Tender	1	Ishikawajima
		Ocean Tug	1	n.a.
		Harbor Tug	2	n.a.
1966	Philippines	Hydrofoil Patrol Craft	2	Hitachi Zosen
1968	Israel	Coastal Patrol Craft	4	Mitsubishi
	Brazil	Oiler	1	Ishibras (in Brazil)
1969	Taiwan	Oiler	1	Ujina
1974	Burma	River Patrol Craft	20 (about)	Mitsubishi

Source: Jane's Fighting Ships 1974-75, passim. The year, in general, is the date of launching. Burmese craft noted during several interviews. They are part of a group of about 50 boats, some of which are used for cargo, some for ferry, and some for patrol purposes.

electronics or auxiliary machinery. It is unlikely that such sales will approach anything like the present volumes of European firms, but some increase would not be surprising.

(5) Training of personnel

In the future, it is possible that Japan might be more willing to accept the overtures for the training of developing country military personnel. Officers of Singapore and Thailand have attended Japan's National Defense College in recent years.[19] Reportedly, many other requests for training from Southeast Asian countries have been declined. Such assistance can leave lasting impressions, witness the influence of the Royal Navy in Japan from the beginning of the build-up of the Imperial Navy to the end of the Anglo-Japanese Alliance.

(6) Financial and Technical Assistance

The previous chapter indicated that non-military security spending, namely various forms of aid, almost certainly would be used to complement the formal defense budget. The explicit designation of such funds for military purposes by the recipient country would cause political difficulties in Japan, but this constraint may weaken in the next few years. Even if it does not, however, security assistance could be feasible in a multilateral context. For instance, a financial pool might be established with contributions from several countries.

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[19]Momoi Makoto, interview, January 25, 1973.

Recipient states could put such funds to a variety of uses, including security.[20] The direct linkage between Japan and foreign weapons procurement thus would be broken.

By the same token, technical assistance or ventures with multiple purposes--developing country shipyards, for instance--also could be acceptable.

Other Regional Considerations

Two final points of regional security must be considered. The first is the safety of tankers far from Japanese home waters. The second is the advantage of seeking stability, particularly in the Indian Ocean, through ties with other middle power navies.

There are four situations under which Japanese merchantmen could be threatened--through a breakdown of order at sea, as an offshoot of a local war,[21] as a result of a campaign specifically directed against Japan, or in connection with a general war at sea. Unless the U.S. and USSR actively oppose the first trend, Japan can neither expect much assistance nor act effectively in her own behalf. If the ocean situation became highly chaotic, it might become possible to escort shipping as far as Southeast

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[20]This is similar to the "Pacific Fund" idea advanced by several prominent Japanese. The author also investigated this concept during the trip to Southeast Asia and found it well received, in principle at least.

[21]Foreign merchantmen have been damaged in most of the recent limited wars--in North Vietnamese ports by U.S. bombing, off Karachi by Indian Styxs, at Latakia by Israeli patrol craft, in Tripoli by Libyan minefields, and on other occasions.

Asian waters. But beyond there, MSDF logistics limitations would preclude effective protection unless someone else was willing to include Japanese ships under their own escort.

Similarly, in the second event, the overall power of the U.S. or the Soviet Union might deter deliberate attacks on their merchantmen, but the damage incurred in local wars usually has been accidental, and hence largely undeterrable. It is possible that some sort of Nyon-type guarantee[22] of the security of shipping in the vicinity of a protracted war could be set up. But probably the best that Japan could hope for would be that superpower intervention would halt the fighting itself, rather than protect the ships per se.

The impact of law of the sea changes on Japan's attitudes towards distant shipping should not be discounted. In the late 1960s and early 70s, any interruption of traffic in the Straits of Malacca would have led to calls for defense of the sealanes by right-wing Japanese and forecasts of MSDF dispatch by leftist critics. The 1968 grounding of a VLCC in the Straits prompted a series of navigational surveys in which Japan's participation generated considerable riparian state resentment. In January 1975, however, the 237,698-ton tanker Shōwa Maru struck a reef off Singapore.[23] Tōkyō's response was reported as follows:

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[22]See above, note 1-46.

[23]It is interesting that the ship was in the Straits at all, in light of the December 1972 Malay-Indonesian declaration excluding ships over 200,000 tons. Many coastal state claims have been disregarded during the law of the sea negotiations, however.

> Confronted with this big incident of a Japanese ship polluting international waters with oil, the Government has come around to the view that it appears inevitable that free navigation of shipping is due to come under some form of international restriction in the future.[24]

This is hardly the militaristic outcry once envisioned.

The increasing acceptance of restrictions on shipping through legal regimes will make it harder to justify unilateral responses to restrictions which stem from local wars or other disturbances not specifically directed at Japan. As noted earlier, however, some sort of multi-national action might be possible if violations of propriety become too flagrant.

The cases of a campaign against Japan itself and a general war at sea will be considered in the next chapter.

The other basic question, concerning the advisability of seeking regional stability through local naval hegemonies probably will not be Japan's to decide. Devolutions of power, should they take place, will be determined by the superpowers. Moreover, such surrogates will derive their primary strengths from superpower arms, to which Japan can offer few alternatives. In its pursuit of a maximum diversification of resource suppliers, Japan cannot afford to be on the wrong side of a power struggle involving an entire region, and so would do best to sell her offerings (military or otherwise) to all sides or none. It was suggested in Chapter Four that stability as an

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[24] NKIW, January 14, 1975, p. 2.

offshoot of regional hegemony was preferable to anarchy, recognizing that the price for such equilibrium might be restrictions on the very navigation it professes to protect. It is in such situations that Japan can best contribute to both her own interests and the evolution of the international system. By using her own formidable marine commercial potential to build ships, train seamen, etc., she can enhance the stake of the contesting powers in eliminating restrictions on seaborne trade, at least between regions. In time, these might lead to the reduction of discrimination to some lowest common denominator while broadening the focus of ocean management beyond the national level.

Chapter Nine

THE MILITARY DIMENSION - PART II

THE LOCAL BALANCE AND OTHER CONSIDERATIONS

Japan's physical security and political autonomy both rest on a balance among the nuclear powers in the Northwest Pacific.[1] A deterioration in this local equilibrium could lead to threats of invasion, air attack or blockade, attempts at intimidation by demonstrations of force, or moves against third parties which could create undesirable precedents. Whether or not there were any overt pressures, Japan would be at least deferential towards any power which held naval superiority in the Northwest Pacific. Even within a generally stable balance there may be conflicts over ocean resource zones, terrorist activities or infiltration.

It is at this local level that the MSDF is designed to operate. It also is within the adjacent sea areas that its greatest potential lies, for that is where Japan can act as a coastal state in the defense of her interests.

Patterns of Threats

No one so far has been able to put forth a truly believable

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[1] This would be true even if she pursued armed or unarmed neutrality.

scenario for an attack on Japan. There simply are too many hypotheses which must be strung together to arrive at such a threat from the present situation. Another approach, however, may be more fruitful. Namely, by beginning with the objectives--the internal changes in Japan which an opponent might wish to encourage--one can work backwards to the methods which might be used to achieve them.

Basically, Japan could find herself threatened with force on the strategic level[2] by those who sought to (a) overwhelm a united country, (b) weaken the nation by accentuating internal divisions, (c) intimidate the government if the State were divided or (d) promote revolution or social upheaval. Tactically,[3] force may be employed to impose one's point of view in a particular dispute, or to improve a negotiating stance.

The key point is that neither the international situation nor the domestic one can be considered independently. The interaction between the two will be at least as important as either by itself.

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[2] I.e., in such a way as to endanger the territorial integrity, political autonomy or economic well-being of the home islands themselves. Some rationales for such pressures might be to gain better access to the Pacific, split the Western Alliance, eliminate economic competition or encourage one's own brand of revolution.

[3] I.e., less important issues, usually localized geographically.

Direct Threats to the National Territory

It is unlikely that a united Japan would be left to face a major assault alone. Such an attack could not be quick and easy.[4] Moreover, there is no question of the legitimacy of Japan's borders.[5] Thus the international community would not be presented with a fait accompli. It would witness several weeks (at least) of attacks on territory whose sovereignty is unquestionable. However far America might have renounced its international commitments, the success of such aggression would establish a very dangerous precedent. Similarly, although sporadic attacks on individual merchant ships might not invoke U.S. assistance, America is too dependent on her own sealanes to allow a coordinated campaign against Japan to go unanswered.

A weakened and divided Japan, on the other hand, probably could be coerced towards the desired position without the actual use of force.[6]

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[4]While I accept Mr. Kaihara's critiques of the Self-Defense Forces, I do not agree that the country could be quickly overwhelmed--assuming that it chose to resist. See Taoka, op. cit., (note 5-11), passim.

[5]Excepting the Northern Islands question and some seabed disputes. But these will be discussed later.

[6]Whether or not the process of such intimidation would unify the country will have to await the actual course of events. Perhaps the most dangerous situation (in the sense of leading to a longer struggle) would be a case where outside pressures created a will to resist which was not recognized by attacker and allies alike until the fighting already had begun. This, of course, is precisely the error that Japan herself made at Pearl Harbor.

The potential threats which a united Japan might face range from nuclear or conventional air strikes to invasion. Among the roles which naval forces could play in such situations are: deterrence, early warning, air defense, and invasion defense.

(1) Deterrence

The question of Japanese nuclearization has been explicitly excluded from this study. Were such weapons to be decided on, however, there would be valid arguments for putting them in submarines to enhance their survivability. Such a force probably would not affect the MSDF very much. The fact that sea-based deterrence resides in naval ships does not increase a nation's naval power per se. The missile submarines would not be available for ASW or anti-shipping roles until they had launched their weapons, by which time such additional capability probably wouldn't matter very much.

The conventionally-armed SDF, however, can deter simply by reducing the prospects for the quick (not necessarily the ultimate) success of an assault. Such a philosophy implies that at least some capability should be maintained against as broad a range of threats as possible to minimize the chances of blackmail by means for which there are no defenses. This is reinforced by the fact that Japan is limited in her ability to exert counter-pressure on other issues.

(2) Early Warning

One of the weaknesses of Japan's air-defense system is the vulnerability and limited number of air-search radar sites. (See Figure 9-1.) One writer has noted that the destruction of any two adjacent radars could leave a detection-free approach corridor for low altitude aircraft.[7] Furthermore, even when operational, such sites are horizon-limited in the detection of low flyers.

Airborne Early Warning (AEW) aircraft can give the most effective notice of impending air attack.[8] Surprisingly, none are included in the ASDF inventory, although halting steps are

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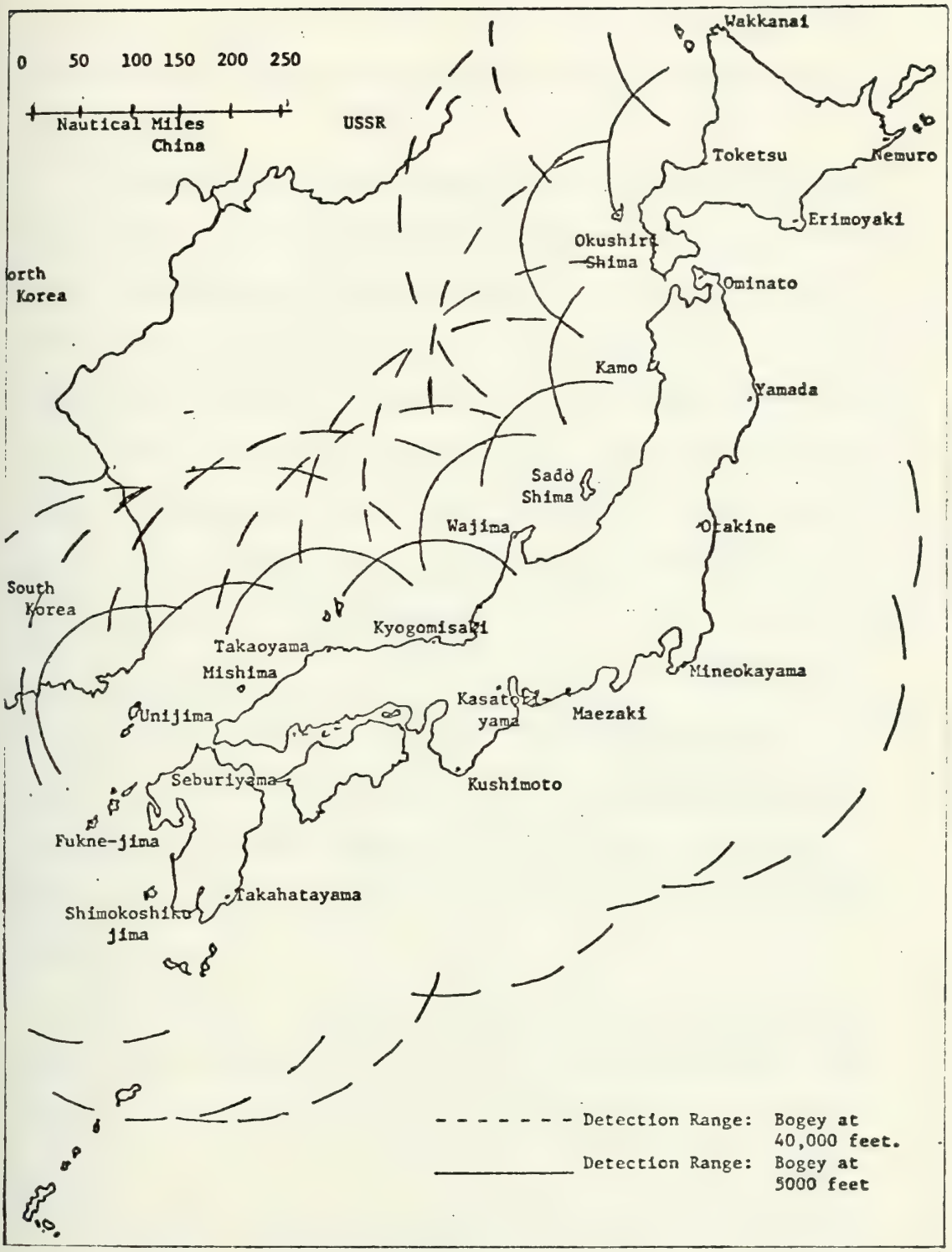
[7]Hughes, op. cit. (note 5-34), p. 334. It should be remembered, however, that few other countries are better off. In NATO, for instance, the NADGE system (NATO Air Defense Ground Environment) contains ". . . no provisions for the detection and countering of missiles and low-level, sub-radar threats." Furthermore, although additional coverage is provided by interfaces with national air defense systems in some countries, NADGE also is vulnerable to the creation of detection-free corridors by the destruction of only a few radars--particularly in the south. This probably will not be remedied until the U.S. AWACS (Airborne Warning and Control System) becomes operational late in the 1970s. (See Jane's Weapon Systems, 1973-74, pp. 195-196.) The U.S. southern coast is vulnerable from Cuba--a fact often stressed in the early 1960s. In part, each of these cases is a corollary of the Western defense philosophy which (until recently, anyway) emphasized sophisticated equipment in necessarily smaller numbers. The contrasting approach is provided by the Soviet air defense network, which is built around thousands of relatively simple (and overlapping) radar, missile and gun sites.

[8]See the description of the American AWACS in Richard D. English and Dan I. Bolef, "Defense Against Bomber Attack," Scientific American, CCXXIX (August 1973), pp. 11-19.

Figure 9-1



Hughes, p. 335

JAPANESE AIR DEFENSE RADAR COVERAGE

being taken to procure them.[9] On an interim basis, therefore, and also in areas away from the primary threat axis, MSDF units sometimes could provide mobile radar coverage and additional intelligence.

It is recognized that picket duty is an inefficient use of Japan's ASW-oriented destroyers and frigates. Furthermore, the ships assigned to such stations traditionally have suffered heavy casualties--witness the tremendous losses of U.S. destroyers off Okinawa in 1945. Nevertheless, if no alternatives were available, and air attacks were expected, the diversion of some MSDF ships to early warning tasks might be attractive. As a change in policy, it also would signal an awareness of a coming crisis and a willingness to respond to it.

(3) Air Defense

Most MSDF ships are poorly suited to break up massed air attacks, or even to defend themselves. Only Amatsukaze has a surface-to-air missile capability, although two more guided missile destroyers (DDG) will be added by the end of the Fourth Defense Plan.

In any case, the important targets to be defended are on land, except possibly for offshore oil fields. Moreover, even a missile ship probably would require more fighters to defend it

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[9]The AEW acquisition, along with the PXL, was delayed by the debate over domestic production.

than its armament could free for other tasks. Should forward air defense, fighter cover for ocean resource disputes, or protection of outlying islands be required, however, the limitations of the F4EJ[10] (the Japanese version of the U.S. F-4 Phantom aircraft) might necessitate shipboard air control.[11] This in turn would require greater coordination between MSDF and ASDF units--the more so because the MSDF, unlike the USN, does not have air defense aircraft of its own to draw on for experience.[12]

In inshore waters, air defense weapons on patroling ships could force frequent changes in the approach and exit corridors

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[10]In order to restrict the offensive potential of the aircraft, its self-contained air-intercept capability was reduced. Instead, target information is fed to the aircraft from ground radars. It is questionable how well this would work in an intensive electronic warfare (EW) environment or if some of the ground stations were destroyed, but even in peacetime some sort of forward base probably would be needed for offshore operations.

[11]Air control, in this sense, means the shipboard capability to direct fighters to intercept other aircraft. One essential device for such work is a height-finding radar, which now only is found on Amatsukaze. The MSDF potential for air control missions could be improved fairly quickly by the installation of height-finding or three-dimensional radars on newly built or refitted ships.

[12]Regrettably, there is little evidence that such cooperation is developing. No ASDF aircraft were involved in the Yuyo Maru sinking (see below, p. 317). Though this had some basis in budgetary and operational concerns, it also appears that neither the MSDF nor ASDF was very enthusiastic about a joint training exercise. (JDA official, interview, December 13, 1974.) Auer, op. cit. (note 5-34), pp. 291 ff. 16, notes a 1971 case where ASDF aircraft, assigned to make simulated attacks on MSDF units, mistakenly made their passes against a Soviet destroyer, thus precipitating a minor international incident.

for attacking aircraft, thus complicating an opponent's planning. In this regard, mobile anti-aircraft units on barges, or containerized SAM mountings could be very useful items of coastal air defense.

(4) Defense Against Invasion

Whatever their other missions, the SDF must have some ability to defend Japan against invasion, however remote that possibility may be.[13] It has been suggested (Chapter One) that air superiority is the key to control of coastal waters. Despite the limited range of Soviet fighters, it is doubtful that the ASDF could maintain control over the skies of Hokkaidō and northern Honshū, especially since its airfields would become early casualties. However, during the first stages of an invasion they could provide cover for a naval strike against the landing force in addition to delivering their own ordnance. Moreover, by distracting the escorts they could provide better opportunities for submarine attack.

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[13] See above, p. 157. One uncertain factor in invasion defense is the willingness of the Japanese people to resist. A recent survey indicated that "if Japan is invaded by armed force by a foreign country," 44% of those interviewed would flee or not resist. (Tōkyō Shimbun, November 24, 1973). On the other hand, the same poll showed over 30% willing to fight with the SDF or to offer guerrilla-type resistance--a manpower pool of over thirty million if extrapolated to a national response. It is very hard to judge wartime reactions from peacetime polls. However, several observers have suggested that the surrender and peaceful occupation of 1945 were possible so long as foreign troops were not on Japanese soil. Had the invasion actually taken place, it is said, the resistance would have been bitter and lengthy.

As Taoka has pointed out, the amphibious forces of the Soviet Pacific Fleet are limited.[14] In particular, they have:

Table 9-1

SOVIET PACIFIC AMPHIBIOUS ASSETS
(as of July 1, 1974)

Type	Class	Number	Capacity (each)
LST	Alligator	4	1,700 tons, 30 light tanks, about 15 medium tanks
LSV/M	Polnocny	15	350 tons, 6 tanks (est.)
	MP8	2	400 tons, 6 tanks
	MP4	8	? tons, 6-8 tanks
LCT	Vydra	35	250 tons, 6 tanks (est.)
	MP 10	10	150 tons, 4 tanks
		59	24-25,000 tons, about 480 tanks and armored vehicles

Source: M. MccGwire, et al., Soviet Naval Policy, Chapter 22 (LSV and LCT class figures estimated. Type totals only were specified in most cases.) These numbers are considerably higher than those given in Jane's Fighting Ships, 1974-75.

Thus the 250 medium tanks (T54/55) and 19 light tanks (PT76) of a single Soviet mechanized division[15] would require more than half the capacity of the Pacific amphibious forces. The problem is compounded when armored personnel carriers, tank

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[14] Taoka, op. cit. (note 5-11), p. 28.

[15] The Military Balance 1974-75, p. 83.

destroyers and artillery are included. When coupled with the tenuous supply lines at the end of the Trans-Siberian Railway and the Chinese position on the Russian flank, the direct invasion threat to the home islands does not seem particularly impressive. This is true even should the Soviet Union use merchant shipping support and airborne troops for the initial strike. This point is magnified by the frequently rough waters in the Sea of Japan, the vulnerability of such a landing force to submarine attack throughout its transit, the Japanese expertise at mine warfare, and the fact that the GSDF keeps four divisions and 300 tanks deployed in Hokkaidō against such an eventuality.

The People's Republic of China is even less of a direct menace, with some 400 miles of sea to cross, and a much less capable long-range amphibious force. Indeed, the PRC has had great difficulties mounting assaults against the Nationalist-held offshore islands ever since 1949.

The use of Korea as a stepping stone would add several possible threat axes to complicate Japan's planning, but would not offset the socialist countries' logistics or transport weaknesses.

Thus, neither China nor the Soviet Union could afford to suffer many losses in an amphibious operation without seriously degrading its ability to sustain the campaign.

This situation is not so secure with regard either to the

southwestern Ryukyus, or some islands on the East China Sea continental shelf. Both probably could be taken by a quick attack, and an incentive might be provided if there were discoveries of nearby seabed resources. The defense of these areas will be discussed below in connection with oceanic boundary protection.

The question now arises of the armament for ships in an anti-invasion role. The advantages of ship-to-ship missiles have been proven on numerous occasions. Speed and sea-keeping ability will be important, especially in the Sea of Japan. Although some air defense will be necessary, it would be expected that fighters would provide cover insofar as possible. Thus point defense rather than area defense systems would be more cost-effective. A major anti-submarine suit would be superfluous since most of the sensors would be incompatible with a sudden, high-speed strike. Should some sort of screen be needed, it might be provided by shipboard helicopters. The most suitable platform for such a mission from speed and maneuverability standpoints probably would be a surface skimmer.

In sum, then, the optimum surface ship for the protection of Japanese coastal waters would seem to be a surface effect ship or hydrofoil with SSMs, a reasonable air control capability, point defense weapons, and a minimal ASW suit. Air cover, particularly in the Sea of Japan, should be available. These also should be complemented by submarines, both for attacks on the

landing force and on escorts or pickets.

Such submarines, incidently, need not be nuclear. The increased cost of an SSN makes sense only if Japan were to adapt a defense-in-depth strategy of carrying attacks to the enemy while his submarines were in transit, or sinking his own coastal shipping.[16] If attacks on invasion forces or blockades of straits are to remain their primary mission, it is not certain that a noisy, first-generation SSN would be much more effective than a quiet, advanced conventional boat.[17] On the other hand, building at least a few nuclear submarines would give Japan additional options, as well as experience in the construction of such ships.[18] With the increased cost of fuel, the life cycle costs of an SSN also might not be disproportionate.[19] In any

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[16]James E. Auer, in "Japanese Militarism," USNIP, XCIX (September 1973), p. 51, notes that "If attacked, [Japan's] forces would be authorized, the government has stated since 1959, to attack enemy bases." Presumably this also would include forays into the Sea of Okhotsk or the western Sea of Japan.

[17]The Soviet Union has continued to build non-nuclear submarines, some of which may use exotic propulsion systems such as the Walther-cycle pioneered by Germany during World War II. Alternatives might be hydrogen peroxide systems like Britain's Explorer and Excaliber, improved fuel cells or high-capacity batteries.

[18]Commander Sekino has noted that a warship power reactor would not be subjected to international inspection under the non-proliferation treaty. Japan thus could carry out advanced research without fear of losing industrial secrets if NPT were ratified.

[19]A 1972 study found that the average construction costs of a nuclear submarine ranged from 2.4 to 11.4 times those of a conventional boat, with 5.1 as the most likely figure. Life

case, the decision probably will be based more on political considerations than on military ones. It would be facilitated if world-wide trends pointed to the wide-spread use of such plants in merchant ships.[20]

It may be useful at this point to compare this approach to that adopted by Sweden and in Germany whose naval concerns are mostly coastal defense. Table 9-2 summarizes Swedish, German and Japanese defense forces.

Note that Japan is able to maintain a force roughly three times as large as Sweden's with only a quarter of the burden. The SDF have become slightly less than half the size of Germany's with only about a third of the relative expenditures. Of course, numbers alone are a poor measure of a nation's military effectiveness. The point, however, is to show that the general result of the Japanese defense effort does not compare unfavorably with that of some European States. Neither is it unreasonable in light of the current threat to environment and her more secure geographic situation.[21]

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cycle multiples lay between 1.65 and 4.25 with 2.90 as most probable. See the abstract of LCDR James R. Shreckengaust, USN, "Conventional vs Nuclear Attack Submarines" (U), unpublished thesis, U.S. Naval War College, Newport, R.I., 1972. SECRET/NOFORN in Naval War College Journal of Abstracts 1971-72, p. 95.

[20]This is true even despite the Mutsu fiasco. See below, note 10-13.

[21]For instance, much of German land effort is devoted to tanks and armored personnel carriers for use on her northern

Table 9-2

A COMPARISON OF SWEDISH, GERMAN AND JAPANESE DEFENSE FORCES

Naval Forces

	Sweden		W. Germany		Japan	
	Numbers (Building)	Tonnage	Numbers (Building)	Tonnage	Numbers (Building)	Tonnage
Destroyers/ Frigates	13 (0)	24,000	17 (0)	44,710	45 (0)	85,550
Submarines	17 (5)	9,995	30 (0)	14,690	14 (2)	19,810
Corvettes	0 (2)	0	6 (0)	3,802	20 (0)	7,690
Missile Patrol Boats	1 (16)	140	10 (20)	2,340	0 (3p)	0
Torpedo/ Gunboats	48 (0)	5,300	10 (0)	2,250	5 (1)	490
Mine Sweepers	32 (6?)	6,380	62 (0)	15,212	48 (6)	16,009
Mine Layers	12 (2)	9,355	2 (0)	7,700	2 (0)	2,780
Amphibious Forces	9 (0)	1,560	22 (0)	4,400	6 (2)	8,655
Total (including auxiliaries)	132 (31)	86,730	197 (20)	211,091	219 (16+ 3 plan)	166,254
Naval Air Arm	27 Helicopters		15 LRMP, 60 FB 22 Helicopters		110 LRMP, 60 Helos. 40 Misc.	
Personnel	11,900 + 2,900 res.		39,000 + 27,000 res.		38,323 + 600 res.	

Table 9-2 (continued)

	Air Forces		
Fighters/ ground attack	6 A-32A sqdn with ASM 3 AJ-37 sqdn 1 SK-60B sqdn	10 sqdn = 180 F104G 8 sqdn = 168 G91R3	4 sqdn = 120 F86F
All weather interceptors	13 J-35F sqdn 6 J-35A/D sqdn	4 sqdn = 60 F4F	10 sqdn = 130 F104J 40 F4EJ 80 F86F
Reconnaissance/ Fighters	2 S-32C sqdn 3 S-35E sqdn (up to 18 aircraft/sqdn)	4 sqdn = 60 RF4E	1 sqdn = 15 RF4E
	9,700 + 2000 reserves	111,000 + 85,000 res.	40,980
	Land Forces		
Organization	6 armored brigades 20 infantry " 4 Norrlands " 50 infantry, artillery, and AA batallions	13 armored brigades 15 armored or motorized infantry brigades 2 mountain brigades 3 airborne brigades	1 mech. division 12 inf. division 1 airborne brigade 1 mixed brigade 1 artillery brigade
Air Defense	Hawk + Redeye 2 sqdn Bloodhound 2(AF)	216 Nike Hercules (AF) 216 Hawk (AF)	140 Hawk 5 groups Nike J(AF)
Personnel	48,400 + 9,000 res.	340,000 + 518,000 res.	154,000 + 39,000 res.
Land area (km^2)	448,070	248,640	370,370
Population (1971)	8,100,000	61,780,000	106,000,000
Defense expenditures as % of GNP (1973)	3.1	2.9	.8

Source: The Military Balance 1974-75

Still, the emphasis placed by Germany and Sweden on small patrol craft for coastal defense is important. Particularly valuable, although not shown in the table, are the shelters which Sweden has built for her ships. Carved out of rock along the coast, they are said to be capable of withstanding nuclear attacks. Earthquakes would be a drawback against such a plan for Japan, but since civilian submarine tunnels have been designed, this should not be insoluble. In any case, the fate of the North Vietnamese torpedo boat fleet after the Gulf of Tonkin incident indicates the fragility of exposed fast patrol boats. Unlike logistics improvements, such shelters would be fairly long lead-time items, whose construction would have to be begun well in advance of hostilities.

Direct Threats to the Sea Lines of Communication

(1) The Nature of the Problem

In contrast to the coastal orientations of Germany and Sweden, problems of sealane protection weigh heavily on Japanese defense planners. The experiences of World War II are an important part of these concerns. In that conflict:

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plains. Aside from the obvious lack of land frontiers, Japan's topography limits the usefulness of such mobility even if it were available. Similarly, Japanese ground attack aircraft are restricted by their potential as "offense weapons." Note also that, despite its large size, the Bundesmarine is primarily a coastal defense force. Over half its tonnage is devoted to support ships.

> The war against shipping was perhaps the most decisive single factor in the collapse of the Japanese economy and the logistic support of Japanese military and naval power.[22]

Today the nation is even more dependent on imports than in the 1940s, and its stockpiles are lower. The size and value of modern tankers and containerships drastically increases the importance of each sinking, while the modern submarine is much more capable than its predecessors. By no stretch of the imagination could the present Self-Defense Forces protect the ocean lifelines in a sustained campaign.

The improbability of such an offensive[23] may suggest that it should be dismissed out-of-hand but the fact remains that Japan's weakness to this form of attack is conceded by nearly all analysts, whether they support or oppose an escort role for the MSDF. What are frequently overlooked, however, are her strengths and the vulnerabilities of her potential opponents. Therefore, to highlight these points, as well as to introduce the concept of containerized weapon systems, it is worth discussing sealane defense at some length.

For the sake of argument this analysis accepts the "worst case" assumption of a Soviet campaign against Western Pacific

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[22] USSBS, The War Against Japanese Transportation (hereafter Transportation), op. cit. (note 1-55), p. 6.

[23] McGwire, op. cit. (note 1-54), has pointed to the unlikelihood of a submarine attack against NATO on the grounds of Soviet capabilities, requirements, national interests and intentions. Many of the same arguments operate in Japan's behalf as well.

shipping around 1980. It already has been suggested that the U.S. would almost be forced to offer at least some assistance under these circumstances. The less intense, but perhaps even more dangerous case of sporadic attacks on widely dispersed merchantmen will be examined later.

The crucial factor for Japan in a modern guerre de course would be time. Initial losses would be heavy, since the submarine fleets probably would be deployed prior to hostilities, and convoy systems could not be organized immediately.[24] These sinkings, particularly if they included a few supertankers, would have a great psychological impact. Insurance and freight rates would be driven to extraordinary levels. Seamen might balk at serving. But the rapidity with which the overall economy would be affected will depend on a number of conditions. Among them are: (1) stockpiles, (2) austerity measures, (3) the availability of substitute materials, either domestically or from regions which are not cut off by the fighting, (4) the ability of the shipbuilding industry to replace losses, and (5) the effectiveness of defensive measures, taken either unilaterally or in concert with allies.

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[24]The critical shipping situation faced by the Allies immediately after the resumption of unrestricted submarine warfare in 1917 probably is a better analogy for a modern undersea campaign than the World War II experiences. In the latter case, nearly three years passed between the commencement of hostilities and the greatest submarine successes. The U-boats recorded their best hunting in 1941 and '42, while U.S. submarine sinkings peaked in 1944.

Moreover, it must be kept in mind that the defense of the sealanes is not an end in itself. The United States must keep the North Atlantic and Pacific open in order to fulfill its treaty commitments, as well as for its own security and commercial motives. Japan, on the other hand, needs only to be able to survive for the duration of a conflict. A combination of increased stockpiles, domestic conservation and a credible capability to protect at least part of her commerce may enable her to remain neutral in a war which is not specifically directed at her, and to hold out long enough for foreign help to arrive in one that is.

Unclassified reports of U.S. war planning are difficult to come by. In the North Atlantic, however, a termination within 90 days is assumed.[25] Under such conditions, in a NATO war in 1980, it is expected that some 185 American merchantmen would be sunk--from a total of about 450 U.S. flag vessels.[26] The assumptions and data underlying this study are not available, and it therefore is hazardous to extrapolate the results to the Pacific. However, a figure of about 200 ships lost in the first three months of a Pacific War also might be reasonable as a first

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[25] Blackwell Testimony, op. cit. (note 1-52), pp. 58-69.

[26] Ibid. Included are 43 containerships, 83 other dry cargo vessels, 39 tankers, and 20 older vessels from the reserve fleet. U.S. fleet total is a 1978 estimate from Kasputys, op. cit., p. 162.

approximation. One reason for this is indicated in Table 9-3.[27] Note that the U.S. Pacific fleet and the MSDF comprise a relatively larger share of non-communist ASW units than the Soviet Pacific Fleet does of socialist submarines.[28] Moreover, in both oceans geography has been unkind to the USSR, with choke points at the entrance to the Baltic and the GIUK (Greenland-Iceland-UK) gap in the Atlantic, and at the Tsushima, Tsugaru and Soya Straits in the Pacific. Only Petropavlosk in Kamchatka faces the open ocean, and it is restricted by weather and logistics. Bases in the Kuriles could be developed or serviced by tenders, but there still would be logistics problems.

Thus, though it would seem that fewer than 185 ships would be lost in the Pacific, a figure of 200 will be used to allow for MSDF weaknesses and the possible diversion of U.S. assets to a simultaneous NATO crisis. This is a tremendous loss rate. Drawing from one projection of average ship size and numbers in 1980,[29] it would equate to over 3,900,000 GRT. By contrast, the

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[27]The Soviet decline is derived from the assumed phase-out of more than 120 diesel submarines (Q, W and Z classes) built during the mid-1950s. A replacement rate of 9 attack submarines a year was assumed, with the rest of Soviet attention being devoted to missile boats.

[28]This assumes that USSR and PRC assets would not be additive in an oceanic conflict in the near future. Were they to be, the geographic constraints on the USSR would be broken since, presumably, she also could use Chinese bases.

[29]Bates and Yost, "Where Trends the Flow of Merchant Ships," op. cit. (note 2-3), pp. 258-259. Data as follows:

Table 9-3

A COMPARISON OF SUBMARINE AND ASW ASSETS IN THE NORTH ATLANTIC AND NORTH PACIFIC IN 1974 AND 1980

Submarines (excluding FBMs)

	1974[a]	1980
Atlantic		
USSR (Northern & Baltic Fleets)	204	155
Warsaw Pact	6	6
	210	161
Pacific		
USSR (Pacific Fleet)	75	55
PRC	49	50

ASW Units

	Carriers & Helo Carriers	Ocean[b] Escorts	Sub-[c] marines	Carriers & Helo Carriers	Ocean Escorts	Sub-marines
Atlantic						
U.S.	7	96	39	6	94	38
Potential Allies(d)	3	148	100	5	152	98
	10	244	139	11	246	135
Pacific						
U.S.	8	96	39	6	94	38
Japan	-	45	14	-	54	13
	8	141	53	6	148	51

Source: Jane's Fighting Ships, 1974-75. 1980 figures estimated from probable fleet buildup programs and retirements of aging ships. U.S. assets distributed equally between Atlantic and Pacific--a reasonable assumption based on 1971 data.

Notes:

(a) Soviet Naval Developments, Chapters 22 and 23, give 155 and 60 respectively for mid-1974 Soviet submarine strengths. 1980 figures, however, are not markedly different.

(b) CG(ex DLG), DDG, DD, FF or foreign equivalents

(c) SSN, SSGN, SSG, SS. Coastal submarines included for those nations bordering choke points.

(d) Britain, France (two-thirds only, assuming some Mediterranean commitment), Canada (two-thirds, assuming a Pacific squadron), Netherlands, Belgium, West Germany, Norway, Denmark.

heaviest losses which Japan suffered to submarines during an equivalent period in World War II were 164 ships of 756,000 tons.[30]

Even in the unlikely case that the full weight of the attack fell on Japanese shipping it is not the magnitude of the loss alone which must be considered. It is submitted that the important issues are (a) the amount of the loss as a percent of Japan's total transportation capacity and (b) the ability of her shipyards to replace it. The tonnage noted above comprises about 10 percent of the 1973 Japanese merchant marine (presumably, it would be a somewhat smaller part of the 1980 fleet[31]) and is

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Type Ship	Avg.Size (DWT)	% of Total No.	Number Lost	Tonnage Lost
Tanker	75,000	19.5	39	2,925,000
Bulk Carrier	45,000	14.4	28	1,260,000
Container Ship	13,500	7.8	16	360,000
General Cargo	8,000	58.5	117	936,000
				5,861,000 DWT
			equals about	3,926,800 GRT

If the mix of lost ships was the same as the 1974 Japanese fleet proportion, the losses would total 4,825,000 GRT. Using the breakdown of U.S. projections given by Secretary Blackwell (extended to 200 ships) adds up to 3,447,000 GRT.

[30]USSBS, Transportation, op. cit. (note 1-55), p. 47. The maximum sinkings occurred between August and October 1944. It is not clear whether this is GRT or DWT.

[31]Although Japan's merchant tonnage is expected to increase in the next few years with the completion of large tankers and bulk carriers now on order, this trend eventually may be reversed as less profitable ships are sold off to foreign owners. It is probable, however, that the capacity of the 1980 fleet will be larger than today's, though its numbers may be smaller.

proportionately about half as much as the quarterly losses during 1944.[32] However, at its wartime peak Japan's shipbuilding produced only about a half million tons annually, whereas the country's average quarterly output during 1973 was about 3,900,000 GRT--nearly enough to replace the losses. Admittedly resource shortages eventually would curtail the building, but the backlog of nearly-completed ships probably would be enough to last through the first critical period. It also may be that the post-1977 volume of Japanese ship construction will be considerably less than during the recent heyday of the large tankers. Nevertheless, it almost certainly will continue to be a sizeable percentage of the expected sinkings.

Other factors also work to Japan's advantage. There is no need today to support a war economy such as that which consumed over 50 percent of GNP in 1944.[33] The number of hostile submarines will decline over time as they fall victim to mines and other hazards while returning to base, as well as by attrition in mid-ocean engagements.[34] Facilities for providing contact

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[32] Ibid., p. 114. An average of 3,710,000 tons of Japanese merchant shipping was afloat at the time.

[33] USSBS, War Economy, op. cit. (note 1-55), p. 16.

[34] The decline in her potential opponents' ability to build submarines rapidly is almost a mirror of her own increased ability to build merchant ships. Nuclear submarine production probably will not exceed two dozen boats per year and, although the construction of conventional units could be accelerated, no country or coalition is likely to match Hitler's 1943 figure of 281 new U-boats. MccGwire, "The Submarine Threat to Western Shipping,"

localization information from seabed hydrophones, satellites or radio-direction finding nets give on-scene ASW commanders better intelligence than they ever have had.

None of this is to deny Japan's vulnerability at sea. Neither is it wise to base all calculations on a single scenario.[35] It can be argued that the probable weapons expenditure rates would exhaust both sides early in such a war, that the conflict would escalate, or even that the attacker would run out of torpedoes before Japan ran out of ships.[36] On the other hand, the engagement could drag out over an extended period of

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op. cit. (note 1-54), p. 3, estimates that 50 or so diesel submarines might be turned out per year by the Soviets if priorities were so re-ordered. A separate Congressional reference to a study of a NATO war at sea (perhaps the same one cited by Secretary Blackwell) projects Soviet submarine losses at 70 to 90% during the first 90 days. See U.S., Congress, Joint Committee on Atomic Energy, Military Applications of Nuclear Technology, Part 2, 93rd Cong., 1st Session (Washington: U.S. Government Printing Office, 1973), p. 78.

[35]This also has been one of the most important lessons of World War II for the Japanese. In that conflict her strategic planning was keyed too much to the concept of a single great fleet engagement á la Tsushima. See Senō Sadao, "A Chess Game with no Checkmate: Admiral Inoue and the Pacific War," Naval War College Review, XXVI (January-February 1974), pp. 26-39.

[36]As of July 1973 Japan had 4,171 ships larger than 1000 deadweight tons. During 1944, the best year of the Second World War for U.S. submarines, 6,092 torpedoes were used to sink 548 ships--over 11 fish per sinking. Even assuming that a modern submarine could average only 5 shots per successful attack, it still could take as many as 10,000 torpedoes to destroy half of Japan's merchant marine. Were each of the Soviet's 55 submarines to carry 24 torpedoes and replenish them once a month, at least seven months would be required even if the Soviets suffered no losses. If a net of five submarines a month could be removed from the order of battle, the campaign would terminate in about

time, in which case Japan would suffer severely. Indeed, the post-war effects of even the abbreviated campaign noted above would be traumatic. But the problem is not of the hopeless proportions in which it often is couched.

(2) Some Possible Solutions

In fiscal 1972, Japan imported over 512 million tons of cargo, mostly raw materials, including 118,785,000 tons of iron ore, 50,783,000 tons of coal, 256,832,000 kiloliters of petroleum and over 12,000,000 tons of foodstuffs.[37] At the same time, her merchant fleet contained 159 bulk cargo vessels of over 30,000 GRT, totaling 12,600,000 deadweight tons (carrying capacity). The tanker portion included 149 similarly sized ships which combined to more than 18,500,000 DWT.[38]

If these vessels could be arranged into six convoys of about 50 ships each, capable of making eight round trips a year,[39] they could carry 148,000,000 tons of petroleum

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11 months with the loss of about 40% of Japan's merchant fleet. In point of fact, even these losses probably are exaggerated, since it would be very difficult to maintain much more than 40 to 50% of the available submarines on station.

[37] MITI, Statistics on Japanese Industries, 1973, pp. 76-79. Although these quantities probably will grow in the next few years--at least until conservation measures and the industrial re-structuring can take effect, their growth will be matched by the size of new cargo ships, thus reducing the need for additional bottoms.

[38] Japanese Shipowners Association, Review of Japanese Shipping, 1973 (Tōkyō, 1974), p. 28.

[39] Obviously, the convoys would be routed to different

(57.8 percent of peacetime imports) and 100,800,000 tons of bulk cargoes (about 55.6 percent of the raw materials listed). Although the MSDF only has 45 ocean escorts, it is submitted that meaningful protection could be provided for such convoys through the use of unconventional concepts.[40]

One such idea is the U.S. Navy's ARAPAHO project, which entails the placement of helicopters and containerized support facilities directly on the merchantmen themselves.[41] At a cost of $3.5 to 4 million per package, exclusive of aircraft, nearly any large tanker or containership could be equipped to operate up to six helicopters or eventually V/STOLs. A particular advantage of the system for Japan is that no special structural

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destinations, i.e. to the Persian Gulf for some oil, to Indonesia for some other, North America for grain, etc. Eight round trips per year corresponds to a 20-day voyage each way (including loading) with 45 days leeway for repairs, delay, etc. At 14 knots (which 85% of Japan's merchant fleet can exceed), the oil depot at Kiire is about 19 days from Kuwait and 8 days from Indonesia. Other major Pacific ports, from Long Beach to Sydney, are within 15 days of Yokohama.

[40]In a nuclear environment, concentrations of ships would be vulnerable to attack by IREMs or MRBMs, especially if targeting could be done by satellite. The use of such weapons, however, would open the possibility of like reprisals against isolated bases such as Petropavlosk. (See MccGwire, op. cit., paragraph 31.) In any case, there is little that Japan could do except disperse the convoys under such circumstances.

[41]See, for instance, J. J. Mulquin, "ARAPAHO--Emergency Helo Cover for Merchantmen," USNIP, XCIX (November 1973), pp. 113-117, with comments by H. E. Obedin in the March 1974 issue, pp. 103-104. Also, Mulquin, "The ARAPAHO System and Its Implications for Future Ship-Aviation Concept Development," Naval Engineers Journal, LXXXV (October 1973), pp. 25-34.

provisions are needed for the host ships. Thus the political questions of getting approval from other Ministries or the companies concerned would not be necessary until a crisis actually arose. Moreover, much of the training could be accomplished ashore, perhaps even by reserve units, thus saving both fuel and family separation in peacetime.

If ocean escorts with helicopter decks are in company, the effectiveness of the system would be increased severalfold. The difficult command and control problems of vectoring the helicopters would be reduced. Long-range, hull-mounted sonars and the associated classification and signal processing equipment would be available. Moreover, by using the ARAPAHO platform primarily for maintenance (vice both maintenance and operations), the number of helicopters supported could be as high as ten or twelve. In short, a convoy with two or three suitably equipped merchantmen and about four escorts could operate perhaps twenty to twenty-five helicopters. Moreover, this capability could be acquired for less than the cost of one additional escort.[42]

This is not an argument for the immediate suspension of

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[42]The new 5,200 ton DDH ordered by the MSDF in FY 1975 will cost ¥44,372,000,000 (about $148 million). 6 HSS-2 anti-submarine helicopters also are budgeted at around $4.5 million each (¥8,173 million for 6). At $4 million per ARAPAHO package, 3 would cost $12 million. 25 helicopters would add $112.5 million, for a total of 124.5 million. 100 to 150 men would be required per package as compared with about 350 in a DDH crew. Alternatively, 2 ARAPAHO units and 15 helicopters would be about $75.5 million vs. $86.2 million (¥25,830 million) for a 2,500 ton escort.

destroyer or frigate construction. In the first place, ARAPAHO works much more efficiently in conjunction with ocean escorts. Moreover, it will not become available much before 1978, even in U.S. hands. In the second, the warships are long-lead-time items whose numbers cannot be quickly augmented in an emergency. Finally, the 45 ships planned for the end of the Fourth Defense Plan will barely cover Japan's coastal defense needs, much less those of convoy escort.[43] However, under the assumption that the budgetary constraints on the MSDF will remain tight, such modular systems seem to offer promise for the qualitative improvements envisioned in the Post-Fourth Defense Plan period.

It should be noted that air defense weapons also lend themselves to containerization.[44] There are at least two

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[43]Sekino Hideo has estimated that 32 destroyers and frigates (among other units) would be needed for coastal defense purposes ("Japan and Her Maritime Defense," op. cit. [note 6-1], p. 121). This tallies closely with a study by a group of former Imperial Navy officers who concluded that the protection of small cargo ships in home waters would require 36 destroyers and 16 aircraft. (Reported by Dōba Hajime in the series "Maboroshi no Jishu Bōei" [Visionary Autonomous Defense], Yomiuri, June 15, 1970.) Estimates of convoy defense needs have ranged from 78 (Sekino, interview, December 6, 1974) to 54 (Dōba article). Even accounting for new techniques which might reduce the number of escorts per convoy, and the possibility of refueling from the convoyed tankers themselves, 45 total escorts is a marginal figure.

[44]For instance, the U.S. is considering a system tentatively known as Sentry. This would be a completely self-contained unit including radars, command and control facilities, and 16 vertically-launched missiles in a single container costing about $1 million. Alternatively, the Close In Weapon System (CIWS) might be adaptable. (Mr. Roland Baker, China Lake, telephone interview, October 18, 1974.)

merchantmen sunk by SSMs (one of them Japanese) since 1970 which might have been saved by such devices.

Discussions of a full-scale anti-shipping campaign *in vacuo* have an aura of unreality somewhat akin to those concerning optimal strategies for a nuclear war. But the fact that some defenses can be provided is important insofar as it will reduce Japan's sense of insecurity which stems from her import dependence. Moreover, an ARAPAHO-like system would violate none of the restrictions against offensive weapons (since, almost by definition, it is a defensive arrangement) and could quickly be tailored to threats ranging from a blockade around the home islands to the distant harassment of passing ships. It also is compatible with neutral rights of self-defense and is ideally suited to Japan's primary maritime assets--her merchant fleet and commercial shipbuilding industry.

There is, however, another potential hazard to Japan's shipping--a mine blockade.

Mine Warfare

On March 27, 1945, B-29 minelaying operations were begun in Japanese ports and inland waterways, particularly around the strategic Shimonoseki Strait between Honshū and Kyūshū. A post-war analysis concluded that:

> . . . this campaign, begun earlier and laid on with greater weight, would have reduced effective shipping nearly to the vanishing point.[45]

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[45]USSBS, Transportation, op. cit. (note 1-55), p. 8.

Waterborne transport in pre-war Japan carried about two-thirds of domestic trade, with nearly all the remainder going by railroad.[46] The post-war years have seen a dramatic increase in road traffic:

Table 9-4

DOMESTIC TRANSPORTATION SHARES

	1955	1965	1972
Railroad (%)	52.9	30.7	17.4
Motor Car (%)	11.6	26.0	44.7
Ship (%)	35.5	43.3	37.9
Total (10^6 ton-km)	81,786	186,343	343,390

Source: Review of Japanese Shipping 1973, p. 34, and Un-yu Keizai Kenkyū Center, Un-yu Keizai Zusetsu Shōwa 49, p. 11.

Nevertheless, a mining campaign, conducted either from aircraft or submarines, could disrupt Japanese shipping as quickly, and much more cheaply, than a submarine offensive.[47] The MSDF is well trained and equipped for minesweeping work, but it took the U.S. Navy several weeks to clear its own mines from North Vietnamese ports, and a number of months to locate and identify all the debris in the Northern Suez Canal. Thus major dislocations could

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[46] Ibid., pp. 17, 28.

[47] Harassment might even be done by using ocean currents to carry floating mines.

be expected from even a sporadic application of sophisticated mines.[48] Sweeping helicopters or special mine-hunting craft might be partial answers, but the job inevitably will be tedious. On the other hand, mines or devices like the U.S. Navy's Captor (encapsulated torpedo) also can make the straits around Japan very hazardous for foreign submarines.

Divisive/Intimidating Actions

Perhaps more likely than direct threats to the nation or the sealanes would be pressures designed to create uncertainty, undermine morale and increase domestic divisions. Such acts might include sporadic attacks on Japanese ships or ships bound for Japan, naval demonstrations or harassment of economic activities overseas or offshore.

These would be very difficult to guard against. For one thing, if kept to a low enough intensity, they might not invoke foreign assistance.[49] For another, being more-or-less random, guerrilla-like activities away from Japan itself, they would be beyond the capabilities of the SDF.

However, the creation of such disharmony in Japanese

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[48]The complexity of modern mines should not be underestimated. In addition to fuzes which are triggered by magnetism, noise, pressure, or combinations thereof, there also are timers to turn the weapons on and off, ship counters to allow the sweepers to pass before activation, and other exotic features.

[49]The U.S. is not legally bound by the Security Treaty to come to the defense of Japanese merchantmen, for instance.

society would be more difficult than in most other states. Vertical dissensions (i.e. between industries or factions) would come more easily than horizontal splits between classes.

Tactics for such a strategy might include sanctions directed against a whole range of Japanese interests in specific reprisal for the policies of one industrial group or political leader.[50] Presumably only revolutionary governments or terrorist groups would acknowledge such acts, but more established governments also could proceed clandestinely. Alternatively, specific companies or activities could be singled out to pay for the "sins" of Japanese exploitation in general. By themselves, such activities probably would not have much immediate impact, but they could aggravate existing internal tensions and heighten Japan's sense of isolation if no one comes to her aid.

Physical damage need not be inflicted to make an impression--at least not at first. The sighting of submarines near potential targets could be very unsettling.[51] Similarly, the difficulties

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[50]It has been suggested, for instance, that during the 1972 textile problems with the U.S., the Japanese textile manufacturers found themselves domestically isolated by prospects of American import restrictions which would have affected other products as well. Although it is not clear that Washington had sought this result consciously, it was advantageous to the U.S. position.

[51]The prevailing hypothesis that submarines have little use in presence roles deserves to be challenged. In peacetime the either/or nature of a submarine's weaponry lowers its credibility in the eyes of informed observers. The submarine can, however, have great impact on popular thinking, if only for short periods. Soviet submarines in Cuba made the front pages of U.S.

of sinking modern tankers or bulk carriers offers the possibility of graduated applications of force, i.e. using only one or two torpedoes to damage, rather than destroy.[52]

The best that Japan might be able to do under these circumstances would be to organize potential targets into convoys to at least improve the chances for survival of the crews of ships which might be hit. Point-defense systems or ARAPAHO-type suits could be helpful if the danger were geographically localized, but could hardly be bought in sufficient quantities to counter sporadic threats in widespread areas.

Whether or not any of these acts would be unifying, divisive or intimidating cannot be known in advance. The equipment needed to counter them, however, generally would be included

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newspapers on several occasions in the late 1960s and 70s. Discoveries of suspicious craft in Scandinavian fjords also have been widely reported. In times of terrorism, the emotional response to sightings of unidentified submarines in local waters or near shipping routes could significantly influence decision-making. This would be particularly true in a nation as sensitive about her sealanes as Japan.

[52]In October 1974, the 40,000 DWT Liquified Petroleum Gas (LPG) tanker Yuyo Maru #10 was set afire in a collision near Tōkyō. Since the ship would have burned for months, it was decided that the MSDF would sink it. LPG being much lighter than water, shellfire was used on the afternoon of November 27 to open up escape holes and accelerate burning. The following morning two torpedoes were fired to encourage flooding (two more failed to hit). The coup de grace then was administered by additional shellfire. Even admitting the special problems of LPG, it is easy to visualize the difficulties of dispatching a VLCC by torpedoes alone. Indeed, perhaps the optimal wartime tactic against such ships would be to use one or two fish to enflame or disable them rather than try for actual sinkings.

in that designed for more intense threats.

Threats Which Promote Revolution or Social Unrest

Except for infiltration by sea, such threats fall mostly outside of the province of the MSDF. As noted earlier, Japan's 27,000 km coastline would be difficult to defend in wartime. In peacetime, with the myriads of fishing craft and coastal ships, the assured interception of smugglers or infiltrators is impossible.

Nevertheless, there are some possible countermeasures. (1) Coastal surveillance radars should be improved. This ought to be done anyway in conjunction with the 12-mile territorial sea and the establishment of traffic separation lanes. (2) More fast patrol boats would be useful. Although hydrofoils might be better suited to open-water operations, their rather deep draft while transitioning between foilborne and hullborne modes could limit their effectiveness close to the beach.[53] All-in-all, some sort of fast launches or hovercraft might be more suitable. Finally, (3) the general scope of Japan's intelligence activities should be expanded. This, of course, would suit a variety of other purposes as well.

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[53]The NATO Patrol Hydrofoil, for instance, draws only 2 meters with its foils retracted, but must extend them to nearly 7 meters prior to flight.

Defense of the Economic Zone

The extent of a Japanese 200-mile claim has been outlined in Chapter Seven. Whatever the timing of the legal declaration, Japan's exploitation of the continental shelf and coastal zone will make her adjacent seas even more important than they have been to date. The extent to which these activities can supply the economy's demands will be explored in the next chapter. It does seem, however, that the national resource base will be significantly enhanced. Moreover, the additional space probably will come to be cherished for its own sake.

In sum, there are ample economic and psychological reasons why the Japanese will resent infringements on their economic zone once it is declared. Moreover, nearly all of the states to the west have defined their own ocean areas in ways which are at variance with Japan's. At present, South Korea is almost the only country with which Tōkyō could safely let a conflict arise, but whether or not this balance of more important interests will continue to restrain oceanic disputes is questionable. In any case, defense of a 200-mile claim and ocean development structures will pose special problems for the SDF.

It is about 400 kilometers from Naha airport to the Yaeyama Rettō where Japanese oil exploration now is underway. Some of these same islands are only 110 kilometers from Taiwan and about 320 from the coast of mainland China. Indeed, they lie within

the Taiwan ADIZ.[54] Japan's F4EJs are better aircraft than the F5s and F104s of Nationalist China, and the locally-built fighters of the People's Republic. There also are differences in pilot training and logistics, but the Japanese aircraft do depend on ground-control facilities. As noted above, warships could be valuable as air control units away from the Home Islands particularly if they are fitted with computer-aided equipment.[55] Such a capability might be a necessary backdrop to any negotiations in the area. As has been noted with regard to the Senkaku island ownership:

> . . . [the] controversy is essentially a political one that is being argued in the more polite language of international law and diplomacy. No territorial issue between East Asian states has ever been settled in this way . . . .[56]

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[54]Air Defense Identification Zone, a unilaterally imposed area in which aircraft must identify themselves. The Japanese and Taiwanese ADIZ overlap in this region.

[55]Examples were noted in Chapter One. One illustration of the capabilities of such a system was provided by NTDS in the Gulf of Tonkin. Computer-equipped frigates and cruisers were assigned to a station known as PIRAZ (Positive Identification Radar Advisory Zone) well north of the carriers on Yankee Station. The ships were able to keep track of U.S. aircraft over the Gulf (which sometimes numbered more than 100), weed out enemy aircraft, if any, from returning U.S. strikes and vector fighters to several dozen intercepts. In addition they accounted for a number of MIGs with their own missiles and operated search and rescue (SAR) helicopters. See G. Lockee, "PIRAZ," USNIP, XCV (April 1969), pp. 100-102. While the MSDF is not likely to have the resources to conduct PIRAZ-type operations, automated information systems are planned for future units.

[56]Park, "Oil Under Troubled Waters," op. cit. (note 7-39), p. 257.

Aside from disputes at the borders of the economic zone, offshore drilling platforms, pipelines, seabed mining equipment and, of course, fishing boats also are vulnerable to attack or harassment. NATO is worried about this in regard to the North Sea fields.[57] Among the defenses which have been considered are fast patrol craft, ready-alert heliborne units or VTOL aircraft based on offshore platforms, and increased reconnaissance. Once again, an air-tight shield is impossible, but some security improvements can be made.

Naval Power as a Bargaining Chip

Instead of starting the development of advanced strategic weapon systems, Japan can use the threat of a qualitative change in defense policy itself for international leverage. This is perhaps more true in the nuclear sphere than in the naval one (indeed, the advantages derived from the threat of nuclearization has been advanced as one argument for not closing the option by ratifying NPT), but some influence might be possible nonetheless. Abrogation of the Security Treaty, or the removal of the U.S. bases would bring Japan's actions under closer scrutiny throughout the Far East. Announcement of plans for nuclear submarines or helicopter carriers might then somehow be linked to negotiations with Washington, Peking, Moscow, or even Southeast Asia.

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[57] New York Times, December 25, 1974.

Summary

While it is difficult to postulate a single most likely threat for the MSDF to prepare for, the range of possibilities is broad enough to suggest that future force levels should be keyed to balance and flexibility. The limits of conventional warship design can go only so far in providing such options at reasonable cost.

Containerized defensive systems for merchantmen have uses ranging from local instabilities to full-scale wars against shipping. Ocean escorts are complementary to such systems in many cases. Indeed, they are the most flexible units which the MSDF could acquire under its present constraints, although they are becoming prohibitively expensive. Their effectiveness could be greatly improved by the addition of tactical data systems and three-dimensional radars, and the upgrading of aircraft facilities to handle manned helicopters and RPVs. Nuclear submarines might become politically possible in the 1980s. Without an increase in budget, however, the increased effectiveness of the SSN might be outweighted by its additional costs. The present emphasis on minesweeping must be continued, and new equipment procured to deal with modern devices.

Surface skimming patrol craft would have great advantages in invasion defense, policing of the economic zone and rapid reaction missions. If surface effect ships or hovercraft develop rapidly enough, they might fill both offshore and inshore roles.

Hydrofoils, however, probably would have to be supplemented by displacement-hull patrol boats in restricted waters. Surveillance radars will be needed for defense and safe navigation in the economic zone. Hydrophone and sensor technology should be developed to improve intelligence-gathering capabilities and initial contact localization. In turn, this will necessitate a more sophisticated command and control system, both to handle the increased volume of data and to cover the expanded area of operations. Provisions also must be made to upgrade the electronic warfare capabilities of individual units and to ensure the ability of communications systems to operate in an intense EW environment.

In a longer term, V/STOL aircraft eventually will be necessary for ships or offshore platforms. Although new weapon systems should be planned to include better domestic logistics support than has been provided to date, the basic philosophy of emphasizing long lead-time hardware still seems to be valid. Should the international climate deteriorate, however, the focus should be shifted to develop the full potential of existing equipment before continuing with expansion.

Chapter 10

THE NON-MILITARY DIMENSIONS OF JAPANESE SEAPOWER

Japan probably makes more intensive use of the seas than any other state. Her shipbuilding has led the world for nearly two decades and completely dominated all competition in recent years. The Japanese merchant marine ranks second only to the Liberian flag of convenience in tonnage. Her fishing industry has been characterized as "the most important, diversified, extensive and far ranging in the world."[1]

To date, these ocean economic interests have been largely apolitical--particularly because of Tokyo's continuing efforts to separate them from diplomatic problems. With the advent of resource shortages, economic warfare, and the changing marine political climate, however, the commercial elements of Japan's seapower can have important political uses. The first of these is protective--those ocean resources and marine services under Japan's control can help to insulate her from pressures applied by other states or non-national groups. The second is acquisitive--maritime capital and expertise can be traded for resources.

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[1]United Nations, Food and Agriculture Organization, Country Fishery Profiles, 1972.

Finally there is the potential for suasive applications of commercial seapower. This is an aspect little explored to date, but it holds some promise should Japan choose to exercise it.

The Scope of Japan's Commercial Ocean Interests

Shipping

The Japanese merchant marine consisted of 9,459 vessels of 36,790,000 GRT in March 1974.[2] Over three-quarters of this tonnage was accounted for by tankers and bulk carriers--rather above the world average of about 67 percent (see Table 2-1). An additional 711 ships of 15,070,000 GRT were on charter. During Fiscal 1973, Japanese ships and charters carried 319,200,000 tons of cargo. 26.6 percent of her exports, and 43.7 percent of imports were loaded in domestic bottoms.[3] This share has been declining for several years and it is doubtful that the Government target of 50 percent ever will be met. Nonetheless, the 1973 figures do represent a 21 percent increase in absolute volume.

Although Japanese shipping earned over 3 billion dollars in 1973,[4] her maritime transportation international payments

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[2]Ministry of Transport, Transportation White Paper, 1974.

[3]Unyushō, Kaiun Koku (Shipping Bureau, Ministry of Transport), Nihon Kaiun no Genkyō (Present Condition of Japanese Shipping), Tōkyō, July 20, 1974, p. 21. By contrast the 1973 U.S. flag share of American trade was 6.4%, totaling 40 million tons. (Blackwell Testimony, op. cit. (note 1-52), p. 7.)

[4]Kaiun no Genkyō, p. 23.

balance was in deficit by 1,707 million dollars in the same period.[5] This situation probably will worsen in the years ahead, for Japan's merchant marine is faced with a number of serious problems. In the short run, there are the current inflationary pressures,[6] and weaknesses in the international shipping market. In the longer term, however, Japanese shipowners are particularly vulnerable to the worldwide changes in the marine political climate described in Chapter Three. Those pertaining to merchant shipping include:

(1) Flag discrimination by developing countries.

(2) Possible navigation restrictions from broader coastal state law of the sea claims.

(3) Marine anti-pollution regulations.

Counter-measures for each of these are being considered. Despite some reservations, notably on the dispute settlement provisions, Japan voted for the Declaration of Principles at the Geneva Liner Conference. This was partly designed to improve relations with the Third World. More important, however, was the fact that a guaranteed 50 percent share in bilateral trade (40 percent where third country ships are involved), would be advantageous if present trends continue.[7] Nonetheless, the convention

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[5] Nihon Kaiji, June 10, 1974.

[6] Maritime wage hikes averaged 41.5% in the 1974 Spring Offensive. The increase in operating costs due to these raises is expected to vary from 5% in the case of VLCCs, to nearly 30% for conventional cargo ships. In the case of the more labor intensive coastal vessels, it is even higher. Nihon Keizai, April 19, 1974.

[7] Asahi, March 13, 1974.

will not be effective for several years, and in the interim the Ministry of Transport is preparing options for legal retaliation in the event of excessive damage to Japanese interests.[8]

The principal victims of the law of the sea claims will be the large tankers upon which Japan's economy is so dependent. The restrictions on the Straits of Malacca already have been described (Chapter Three). Nevertheless, unless the entire Indonesian archipelago were totally closed to tankers, the economic impact will not be excessive.[9] It also is probable that drastic limitations would be necessary to justify the long-delayed Kra canal.[10] The Shōwa Maru incident, however, may have

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[8]Some of the measures under consideration were listed in Nihon Keizai, April 16, 1974.

[9]In late 1974 a 250,000 ton Japanese tanker cost about ¥10 million per day--about $33,000. (Data provided by U.S. Maritime Administration, Tōkyō.) The voyage from the Persian Gulf to Japan is about 6,800 miles via the Malacca Strait (the shortest course), 8,000 via the Lombok Strait, and 14,000 south of Australia. This translates to about 7 extra days (at 15 knots) on a round trip via Lombok or 40 days via the southern route. At $10 per barrel (and roughly 7 barrels per ton), the value of a 250,000-ton load would be about $17,500,000. Thus the added transportation costs would come to only 1.3% of the value of the cargo for the first alternative, or 7.5% for the second. Clearly, these figures will vary. Smaller tankers, for instance, would cost more. The increased value of oil inventories tied up during the longer voyages also must be considered. Although even the sum of these costs might not make too much difference for the Lombok route (note Japan's willingness to re-route her ships after the Shōwa Maru grounding), they could become significant on the Australian transit, especially given the narrow profit margins of Japanese firms.

[10]Several construction plans for a canal across Thailand's Kra isthmus have been drawn up since the project first was proposed in the 19th century. Some schemes involve nuclear

given impetus to a pipeline across the isthmus.[11]

Japan has begun to revise her pollution laws to reduce the vulnerability of her own ships to foreign pressures. They also may facilitate counter-measures on others' vessels in her waters.

In addition to these political problems, there also are structural difficulties. These include the reduced efficiency of existing general cargo liners in the face of containerization, and the planned restructuring of the Japanese economy towards service industries and reduced dependence on raw materials imports.

It is not clear how the shipping industry will cope with these changes, particularly the latter. However, the merchant marine is too important to a maritime nation like Japan to let it die. Suggested directions have included less emphasis on tankers and more on oil product carriers, refrigerated vessels to import fish, containerships and self-propelled petroleum drilling ships.[12] Nuclear ship development received a serious

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explosives, which has made Japanese participation sensitive. For some of the analyses, see Kra Canal Project, "Preliminary Survey Report: A Summary," Revision 5 (Bangkok: K. Y. Chow, April 30, 1974) and Patrick Low and Yeung Yue-man, The Proposed Kra Canal: A Critical Evaluation and Its Impact on Singapore (Singapore: Institute of Southeast Asian Studies, February 1973).

[11] NKIW, January 14, 1975, p. 4, suggests that Saudi Arabian interests may provide the capital for a CTS and pipeline.

[12] See the excellent 25th anniversary supplement to the Shipping and Trade News (Tōkyō, October 25, 1974) for a review of the development of Japan's shipping and shipbuilding industries and discussions of their future. Particularly, in this context, see the panel discussion on pp. 67-70.

setback from the Mutsu debacle,[13] but could be revived if world trends pointed in that direction. Perhaps even more certain, and revolutionary, will be the multi-nationalization of the industry. Profitability could be increased by the use of foreign subsidiaries, "tie-in" ships[14] and a mixture of Japanese and foreign crews. In turn, this may give the companies concerned broader interests than those of Japan alone. As one shipping executive noted:

> . . . I think the Japanese Merchant Marine from now on should become more international. I think it is nonsensical for unarmed Japan to adhere to such narrow concepts as Japanese territory or nationalism.[15]

Such developments would make it progressively more difficult to justify the commitment of the USN or SDF in defense of merchantmen with suspect loyalties.

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[13]The sea trials of Japan's first nuclear powered ship, Mutsu, were delayed for nearly two years by fishermen in her homeport, who feared that their market would be damaged by contamination, or even rumors of it. In August 1974 the ship finally put to sea, only to develop a reactor leak due to gross engineering defects. In the ensuing uproar, she was refused re-entry to Japanese ports and drifted for over seven weeks before arrangements were made to bring her in. As of January 1975 her fate is undecided, with suggestions ranging from reactor shielding improvements to scuttling.

[14]"Tie-in" (Shikumisen) and "Charter-back" arrangements are ways of maintaining control of bottoms under less-expensive foreign flags. See Bruce Littman, "How the 'Shikumisen' Deal Works," Seatrade, December 1973, pp. 137-138.

[15]Kikuchi Shojiro, President of Nippon Yusen Kaisha, Ltd. (NYK Line), in Shipping and Trade News Supplement, op. cit., p. 70.

Shipbuilding

No less than 49.8 percent of worldwide ship construction was launched from Japanese yards during 1973.[16] Ship sales alone accounted for more than 10 percent of export earnings, second only to steel.[17] The industry continued the spectacular rebound begun in 1972, and by the end of fiscal 1973 (March 1974), a backlog of 630 vessels of over 50 million gross tons was on order, mostly for export. This should keep the yards busy well into 1978.[18]

Forecasts, however, were not so bright as recent performance. As noted earlier, the world shipping market is weak, and there is a widespread feeling that shipowners everywhere may have overbooked during 1973.[19] The oil crisis and potential reopening of Suez also have undercut the market for VLCCs and ULCCs which had been counted on for much of future business.[20] Japanese yards

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[16] Japan Times, February 28, 1974.

[17] Tsūsanshō (MITI), 1974 Tsūshō Hakusho (1974 International Trade White Paper), Yōyakuhan Shiryōshū (an) (Data Summary Volume--draft), Tōkyō, June 1974, Figure 12. This was up from about 7% in 1972.

[18] Japan Times, April 20, 1974.

[19] Lloyd's Register of Shipping, Annual Report 1974. Reported in MDN, April 4, 1974.

[20] Japan Times, Japan's Shipbuilding and Shipping, 1974 Survey, May 1974, p. 8. Also Shipping and Trade News, Supplement, op. cit. According to figures published in Zosen, new monthly orders for export ships had fallen from over 2,500,000 tons in January 1974 to about 250,000 tons in September.

have been hard hit by inflationary pressures, and these have curtailed expansion plans (especially for very large dry docks) as well as upsetting previous contracts. However such problems were common to most other major shipbuilding countries, so Japan's relative competitive position will not suffer too badly. Foreign leads in sophisticated product carriers, such as LNG Tankers were worrisome, however, as was the possibility of EEC or U.S. countermeasures.

Another potential threat is from the growing shipbuilding and ship repair industries in the developing countries. South Korea, Taiwan and Singapore all have made sizeable commitments in this field. Spain and Portugal also have been attracting business which once went to Japanese yards.[21]

It is likely that the construction of relatively simple craft and those below 100,000 tons will cease to be profitable in Japan. Nevertheless, the industry has shown remarkable resilience in the past, and this is likely to continue. Moreover, despite their lower labor costs, developing country shipyards cannot match the skill of Japan's labor pool, her advanced technology, and the integrated industrial structure which enables her to produce both hulls and machinery for a variety of ships.

Japan is fortunate in that the current backlog of orders

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[21] Nihon Keizai, June 8, 1974.

will give her managers time to evaluate future prospects before committing themselves.[22] The future of her shipbuilding, however, would seem to be in a combination of advanced designs and overseas movement. Among the former may well be oil product carriers, super-automated ships and ocean engineering structures.[23] These are consistent with the needs of the merchant marine, noted earlier. Joint ventures and technological assistance programs already are well under way, originally in Brazil and East Asia, and now increasingly in the Middle East. Such offshore investments have been dictated not only by the lack of land in Japan itself, but also by the planned foreign diversification of the steel industry.

It is possible that this construction will come to include export warships, but such ships probably would not amount to more than a small fraction of total work.

Fisheries

Well over 50 percent of the animal protein in the Japanese

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[22] See the round-table discussion in the Shipping and Trade News Supplement, op. cit., pp. 98-102. Note also, however, that many of these orders have become unprofitable because of higher building costs.

[23] NKIW, July 2, 1974, p. 4. Mitsui Shipbuilding has received orders for a total of four dynamically positioned drilling rigs in six months. The boom comes when "the business of its shipbuilding division is dulling." (NKIW, July 16, 1974, p. 9). This development has been serious enough to prompt U.S. shipbuilders, who now lead the world in such structures, to consider legislative countermeasures. (Official of the Shipbuilders Association of America, interview, October 9, 1974.) The Mitsubishi shipyard in Nagasaki also is assembling the first full-scale floating city (Aquapolis) for Expo 75 in Okinawa.

diet comes from the sea. The annual catch is the world's most valuable, and overtook Peru's in tonnage when the latter's anchovy industry was devastated by over-fishing and a shift in the Humboldt Current.

Pelagic (distant water and offshore) fisheries account for some 70 percent by weight and 50 percent by value of the Japanese catch. These are mostly large-scale, technologically intensive operations under the control of a few influential companies. Government regulation is maintained by licenses issued through the Fisheries Agency of the Ministry of Agriculture and Forestry which are designed to discourage over-investment and prevent species over-fishing.

Neritic (coastal) fisheries include family, cooperative or corporate operations and bring in about 30 percent of the total harvest value. Small unit fishing is tightly controlled at the prefectural level where it has considerable political power. Large coastal vessels, notably purse seiners, usually belong to corporate interests and are regulated at the national level.[24]

The remainder of the fishing industry is comprised of aquaculture and fresh water operations. Whaling is a separate issue and will be considered later.

The 1972 catch was a record, exceeding 10 million metric

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[24]W. C. Herrington, "Operation of the Japanese Fishery Management System," in A. R. Tussing, T. A. Morehouse and J. D. Babb, Jr., eds., Alaska Fisheries Policy (University of Alaska, 1970), pp. 419-442.

tons for the first time. Japanese fleets range worldwide, driven by a population which eats more than four times as much fish as the world average.[25] Their technology is superb, and is supported by extensive research efforts. Yet nearly all sectors of Japanese fishing face troubled futures.

The problems are fourfold.[26]

(1) Domestic demand for marine products has become larger and more diversified than domestic supplies, thus increasing reliance on imports.

(2) Pollution has seriously affected coastal fisheries and aquaculture.

(3) The international acceptance of the 200-mile economic zone could affect up to 80 percent of the pelagic catch.

(4) Inflation and the sharp increase in fuel prices, as well as a shortage of fisheries product material, have reduced fishermen's profit margins . . . .

In the first case, the demand/supply imbalance is not readily correctable by market forces. Demand has centered on medium and high grade fish (such as tuna), delicacies like shellfish or shrimp, and fishmeal for livestock. Largely because of its efforts to meet this demand, coastal fisheries diversification has stagnated, with some species coming close to being overfished. It may be that government efforts to promote aquaculture

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[25] Food and People, XVI.

[26] Asahi (eve), April 12, 1974, report on FY 1973, Fisheries White Paper. Original in Suisanchō, hen (Fisheries Agency, ed.), Gyogyō Hakusho Shōwa 48 ("Fishing Industry White Paper FY 1973"), Tōkyō, 1974, pp. 4-5.

and the world-wide need to develop new ocean resources,[27] will send Japanese fishermen in search of other species which eventually will satisfy Japanese consumers. Virtually all forecasts, however, show a continued increase in imports for the next few years.[28]

In the battle against pollution in Japan, some isolated progress has been made.[29] But the overall problem is far from being solved, and actually may be getting worse.[30] During fiscal 1972, 345 claims (1.1 times those in fiscal 1971) were filed for damages, but the amount of the damages was 115.9 billion yen, up 3.1 times from those of the previous year. The disastrous 1974 oil spill in the inland sea will seriously affect mariculture in the area. From the standpoint of coastal fisheries, the intensified search for oil and minerals on the continental shelf can only compound the problem. If previous negotiations are any guide, a compromise eventually will be reached which will permit

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[27]Particularly the Antarctic krill which may lead to a doubling of the world's catch. See also Suisanchō Kenkyū bu (Fisheries Agency, Research and Development Section), Shinkai Gyojō Kaihatsura Suishin Hosaku Kenkyūkai Hōkoku ("Research Society Report on Promotion Plan for Deep Sea Fishery Grounds Development") (Tōkyō, July 1974).

[28]Fisheries White Paper, op. cit., p. 67.

[29]Some fish reportedly have returned to the once-barren waters around Enoshima, and the production of mackerel-pike and sardines has revived.

[30]Note the massive oil spill which devastated inland sea fisheries in December 1974.

seabed exploitation in exchange for the generous compensation of local fishermen. But a quick resolution is unlikely.

To date, Japanese ocean fishing has been regulated through a host of regional fisheries and bilateral treaties.[31] The latter mostly have been spawned by extensions of coastal state jurisdiction. Typically, Japan either has established joint ventures with developing country partners, or has arranged to pay some sort of license fee for the privilege of fishing. Two factors, however, are likely to complicate these arrangements. The first is a proliferation of 200-mile claims, largely legitimated at Caracas whether or not a formal treaty ever becomes effective. The second is a general trend towards resources nationalism, which is likely to intensify if a food crisis approaches.

Most attention with regard to 200-mile economic zones has focused on the developing countries. Despite their high visibility, however, only about 370,000 tons of fish a year are caught off the coasts of Africa, South America and Southeast Asia.[32] By far the largest part of the endangered catch comes from the North Atlantic and North Pacific, the Sea of Japan and the East China Sea.[33] The principal adversaries thus are not

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[31]These are listed in Suisancho, Suisan Tōkei Shihyō #4 (Fisheries Statistics Index #4) (Tōkyō, June 1974), p. 102.

[32]Nihon Keizai (ed.), June 3, 1974.

[33]On a species basis, a 200-mile limit would affect some

the developing countries (except for China and Korea). Rather, they are the USSR, Canada and the United States, with whom fisheries negotiations have been conducted almost continuously since the 1950s. It is here, rather than in the Third World, that resources nationalism poses the greatest hardship for Japanese fishermen.

Fourth, the rapid rate of inflation has had a serious impact on fishing operations at all levels.[34] In general, fish culture has become increasingly profitable, while boat operators have been rather hard hit. In mid-1973 the number of fishermen was 508,200, a figure which has been declining since 1964.[35]

Fishing in Japan is supported by an extensive scientific research organization; public, corporate and academic, at the national and perfectural levels. In fiscal 1974, excluding the funding for the Okinawa Ocean Expo, the Fishery Agency received the largest share of the Government's marine development budget--as it has in previous years.[36] In addition to improving ship and equipment design there are intensive efforts underway to

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40% of the tuna catch, and 90% of that of prawns, cuttlefish and pollack. A total of about 4.5 million tons. Fisheries Agency Data.

[34] Suisan Keizai, January 9, 1974.

[35] Fisheries White Paper, op. cit. (introduction), p. 12.

[36] JAMSTEC, Governmental Marine Development Program (by general account) of Japan for 1974 Fiscal Year, by Ministerial Agency (hereafter MDP 74), Yokosuka, April 1974 (mimeo).

promote the optimum usage of living ocean resources.[37]

Aquaculture, however, attracts the major share of the Fishery Agency marine development budget, and it is expected to increase. Japan already boasts a cultivated yield of over 700,000 tons, more than any other country. Among the species currently grown are salmon, greenling, octopus, crab and a host of shellfish. In addition, the traditional harvests of pearl and seaweed are taken. Several studies have called for the promotion of fish farming, not only to provide more efficient use of the resource, but also to increase national self-sufficiency in food. Perhaps some lessons can be learned from the prototype "sea ranch" at the 1975 Okinawa Ocean Exposition. A joint Japan-Soviet symposium also recently suggested cooperative large scale farming of aquatic products.[38]

Whaling

Although whaling has fallen precipitously, both in volume and in value, it remains a highly emotional issue in Japan. The primary reason has been the attempts of conservation groups, and lately the U.S. Government, to impose a global ban on the industry. Such pressures have intensified since the adoption of a

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[37]Kagaku Gijitsu Chō (Science and Technology Agency), Kaiyō Kaihatsu no Genjō to Tembō ("Present Situation of and Prospects for Ocean Development"), Tōkyō, November 1973, Sect. 4.3, pp. 171-177.

[38]MDN, November 23, 1974.

U.S. proposal for a 10 year moratorium on whaling at the Stockholm Environment Conference in 1972.

The opposition arguments are three-fold. (1) Whales are on the verge of extinction, (2) they are being taken for greed, rather than necessity and (3) the slaughter of such mammals is cruel, and the methods currently used are especially so. The Japanese counter with data to dispute the first point[39] and note that seven percent of the nation's 1973 meat intake came from whales.[40] They also point to the killing of animals for sport and furs in the West.[41]

Whatever the merits of each case, the ban has become a most sensitive issue. For one thing even if the total prohibition has not yet been accepted by the International Whaling Commission (IWC), it has led to Japan's near-isolation in that forum. For another, many Japanese feel that they simply are being criticized for different eating habits.[42]

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[39]For instance, some endangered species currently are increasing at a rate in excess of the IWC quotas. (Mainichi (ed.), June 17, 1974).

[40]It would take, it is said, nearly 220,000 tons of beef to replace this whale meat, with a consequent increase in grain demand. (Nihon Keizai, June 2, 1974).

[41]The timing of the U.S. anti-whaling campaign was unfortunate in Japanese eyes. Beginning as it did in the late 1960s, at the height of the Vietnam War, it led to comments that Americans were more concerned about killing whales than killing people. See, among others, Japan Times, April 22, 1974.

[42]Tōkyō Shimbun, June 20, 1974.

Most of the major newspapers have recognized the limited future of whaling, and have recommended an intensified search for new sources of food.[43] Even the companies themselves have accepted the inevitability of stricter quotas on the valuable antarctic fin whales and are searching for alternatives. In the process, however, the United States has come in for a good deal of criticism.

Ocean Development

Aside from aquaculture, Japanese ocean development projects may be divided into three categories: those in adjacent waters or on the continental shelf, those on the deep seabed, and those off the coasts of other states. Volumes have been written about these efforts,[44] but a brief recapitulation is in order since they will become an increasingly important part of Japanese sea-power in the future.

(1) Adjacent Projects

The Japanese Continental Shelf is relatively narrow, rarely exceeding 25 miles except in the area of the Tsushima Strait and

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[43]For instance, Asahi (ed.), June 30, 1974.

[44]Among these are: Science and Technology Agency, Marine Development in Japan 1972 (hereafter MDIJ 72); Japan ECOR, "Status Report of Sea-Bed Exploration and Exploitation Technology in Japan 1972" (Revised edition) (hereafter Seabed Status Report); Science and Technology Agency, Kaiyō Kaihatsu No Genjō to Tembō, op. cit.; and the June 1974 edition (Vol. 5, #4) of Kaiyō Sangyō Kenkyū Shiryō (Ocean Industry Research Materials) entitled "Waga Kuni Kaiyō Sangyō No Gonen" (Five Years of Our Country's Ocean Industry).

north of Hokkaidō. Nevertheless, the shelf area is nearly 76 percent of the total land area,[45] so it has been the subject of intensive investigation. The adjacent waters, which once provided most of the fish, now offer minerals as well. They also are used for desalinization, man in the sea projects, fish farming and a host of scientific explorations including, unfortunately, pollution studies.

(a) Marine Mineral resources include oil and natural gas, coal, and iron sands. Manganese nodules will be considered separately. Gold and other minerals have been found, but not commercially exploited.

Japan's offshore oil fields are new, with prospects for expansion. However, it is doubtful that domestic production, onshore or off, ever will become a significant factor in her energy picture. Such sources accounted for .3 percent of 1973 demand, and even a 50-fold expansion would provide less than 10 percent of the expected 1980 requirements. Nonetheless, every little bit helps, so it is being pursued vigorously.

The political problems often have been more formidable than the geological ones. Notable among these have been the seabed boundary disputes in the East China and Yellow Seas.[46] Local fishermen also have opposed even seismic surveys on the grounds

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[45] MDIJ 72, p. 13.

[46] See Park, "Oil Under Troubled Waters," op. cit. (note 7-39). Also pp. 251-252, above.

that they may lead to exploitation which would bring pollution and interfere with fishing operations.[47]

Major physical hurdles also must be overcome. In the Sea of Japan, for instance, the working season rarely is longer than from March to July. By August the threat of typhoons has arisen, and they are followed by Fall and Winter storms.

Despite these impediments, progress is being made. There are plans to develop the Sakhalin continental shelf in cooperation with the USSR, possibly with American assistance.[48] Recent surveys indicate promising geological structures off the northeast coast of Honshū.[49] An ambitious three-year plan has been devised for oil and gas surveys on the continental slopes, which nearly will triple the size of the offshore areas under study.[50] In addition, new legislations had been proposed to promote the development of continental shelf minerals.[51]

The energy crisis has renewed interest in coal, whose production had been allowed to decline in recent years. In 1970 about 12,500,000 tons (one-quarter of the national output) came from seabed areas. Working shafts have been sunk from artificial islands off Western Kyūshū, but research also has been done on

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[47] Nihon Keizai, April 21, 1974.

[48] Nihon Keizai (eve.), April 27, 1974.

[49] Nihon Keizai, April 24, 1974.

[50] Nikkan Kogyō, July 4, 1974.

[51] Nikkan Kogyō, May 21, 1974.

exploitation from ships or offshore platforms.

Gravel and magnetite placer sand[52] have been recovered from Japanese coastal waters for years. In the past the latter have been less important than onshore iron sands, but may become more attractive in the future. Moreover, the technology developed for this recovery can be used for other placer deposits worldwide.

(b) Desalinization. By 1985 Japan is expected to face a serious fresh water shortage particularly in urban areas.[53] In fact, it is estimated that nearly 22 billion tons of fresh water may have to be recovered from the ocean. The annual capacity of the three plants operating in 1972 was about 2,500,000 tons per year,[54] which obviously will need vast improvements, both in technology and capacity.

(c) Unconventional Ocean Energy Sources. The theoretical attractiveness of harnessing waves, tides and marine currents in Japan is limited by several physical factors. Among these are the relatively low tidal ranges throughout the country and the fact that the position of the Gulf Stream-like Kuroshio varies too much to permit the use of fixed equipment. In the future, solar plants or other advanced systems may become attractive, but this will take many years.

(d) Effective use of Coastal Areas. The rapid rise of

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[52] See above, note 2-30.

[53] Japan Times, June 4, 1973.

[54] MDIJ, op. cit., p. 19.

land prices, additional food requirements, the lack of space for new industrial sites, the need for new port facilities, and a host of other factors have made utilization of the Japanese coastal zone more and more attractive. Coastal and brackish water aquaculture has been mentioned. Large portions of Japan's industrial areas already sit on reclaimed land. An airport in Ōsaka Bay is planned to reduce complaints of noise pollution which have limited operations at the present field. Superports have been built, and more are planned. Even arable lands have been recovered from the shallow seas.

The uses of the zone bordering Japan's 27,000 kilometers of coastline will intensify rapidly. Floating nuclear power plant site studies have been made, but the density of sea (and air) traffic along the east coast poses safety hazards.[55] The location of industrial complexes at sea has been considered.[56] Eventually, seabed oil tanks (such as Ekofisk City in the North Sea) or other storage facilities will be built. Man in the Sea projects one day may progress beyond the range of mere scientific research. Marine recreation facilities in the form of undersea parks and viewing towers already are being built.

In sum, the use of Japan's adjacent waters will grow rapidly, from inshore areas out into the economic zone, however

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[55]Okamura Kenji, Japan ECOR, interview, December 8, 1974.

[56]Odani Kōsuke, JAMSTEC, interview, July 25, 1974.

far it may extend.

(2) Deep Seabed Projects

Japanese firms became interested in manganese nodules late in the 1960s.[57] Initially it was decided to develop their own system, the so-called continuous line bucket (CLB). After several years of testing, however, the approach was changed to investment in joint ventures with American, French and German companies.[58] At the same time 33 corporations and 10 organizations have formed a Deep Seabed Mineral Resources Development Association to coordinate domestic efforts.[59] Geophysical surveys of the waters around Japan also will include prospective nodule sites.

Another area of interest on the deep seabed has been remote-controlled drilling equipment. Recent technology has been directed towards the recovery of petroleum and gas reserves from the continental slopes and possibly the abyssal plain itself. Japanese efforts may not be in the forefront of these developments, but her firms will be quick to make use of any breakthroughs which occur. There also is the possibility that local geothermal activity might produce mineral-rich springs such as

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[57] Seabed Status Report, op. cit., p. 65.

[58] 3 Japanese firms have signed with Tenneco, four with International Nickel (INCO), and Mitsubishi Shōji is cooperating with Kennecott Copper. See Nihon Keizai, May 8, 1974, and Nikkan Kogyō, July 2 and 12, 1974. Once again, this is consistent with the philosophy of minimizing risks and maximizing options.

[59] Nihon Keizai, April 10, 1974.

those found in the Red Sea and along the Mid-Atlantic Ridge.

(3) Foreign Projects

Japan has used its organization, technology and experience very effectively to gain entry to foreign ocean development markets. Foremost among these have been oil and gas, part of the key to her "resources diplomacy."

In the future, such efforts will be coordinated with a whole range of diversified assistance programs, many of them in marine-related fields. These will be explored more fully in the section below on acquisitive seapower.

Japan's Organization for Maritime Development

The business-government relationship in Japan has been the subject of extensive inquiry. Many credit it for the nation's post-war economic success. In the specific field of ocean technology, it has been argued that Japan is better organized than any other country in the world to exploit the future riches of the sea.[60]

The ties between government and business in Japan are undeniably closer than they are in most capitalist countries. Nevertheless, the associations are more complicated than is suggested by the term "Japan, Inc."[61] Perhaps this is best

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[60] John P. Craven, "Industry/Government Relations in Offshore Resource Development." Paper presented at the 5th annual Offshore Technology Conference, Houston, April 29-May 3, 1973. Pt. II, pp. 947-949.

[61] U.S., Department of Commerce, Japan: The Government-

illustrated by an example from the deep ocean mining area.

Businessmen coordinate policies within the zaikai (business leaders' clique) which includes such influential elements as Keidanren (Federation of Economic Organizations) and Keizai Dōyūkai (Committee for Economic Development). Mutual interests among bureaucrats lead to the so-called kambatsu (bureaucratic clique). Barriers between occupations are broken by the closely-knit gakubatsu (university cliques) and innumerable informal associations such as those for common birthyears or zodiac signs. Most important of all are the keibatsu (familial ties) which pervade the upper echelons of Japanese business and government.

Decision-making is a continuous and often informal process designed to establish the consensus so important to most Japanese evolutions. Coordination is emphasized at all levels. There is an ongoing dialogue, usually by telephone, between company representatives and their contacts in the twelve ministries and five agencies of the Government's executive branch. Petroleum and seabed mining concerns work through the Ocean Division of the Resources and Energy Agency. The Ministry of Transport is the liaison for shipping companies, while fishermen approach the Fisheries Agency. Formal lobbying may be resorted to if legislation is pending before the Diet, but it must be paralleled by continued consultation with the bureaucracy. Recently, however,

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Business Relationship (Washington: U.S. Government Printing Office, 1971), passim.

the growing importance of ocean-related projects has been emphasized by the development of more complex channels.

Aside from fisheries, probably the most important commercial forces in Japanese ocean policy are the enterprise groups associated with the major trading companies such as Mitsubishi, Sumitomo and Mitsui. Functional successors to the pre-war zaibatsu (financial cliques), the six major groups controlled nearly 68 percent of Japan's corporate capital in 1971.[62] No longer under family control, they still represent associations of diverse companies linked by a parent bank and inter-locking management. Much of the Japanese policy planning process can be illustrated by a brief description of the interwoven competition and cooperation of these units in search of seabed minerals. (See Figure 10-1.)

Between 1970 and 1973 the Sumitomo group[63] developed a pilot system for seabed mining operations. The bulk of the work was accomplished jointly by the parent trading company (Sumitomo Shōji), Sumitomo Shipbuilding and Machinery, and Sumitomo Metal Mining. Such cooperative efforts are common, although the individual companies are distinct corporate entities which vie for funds and projects within the group.

Among the 44 Sumitomo Companies there are some 60 organizations which are involved in ocean-related activities. To increase

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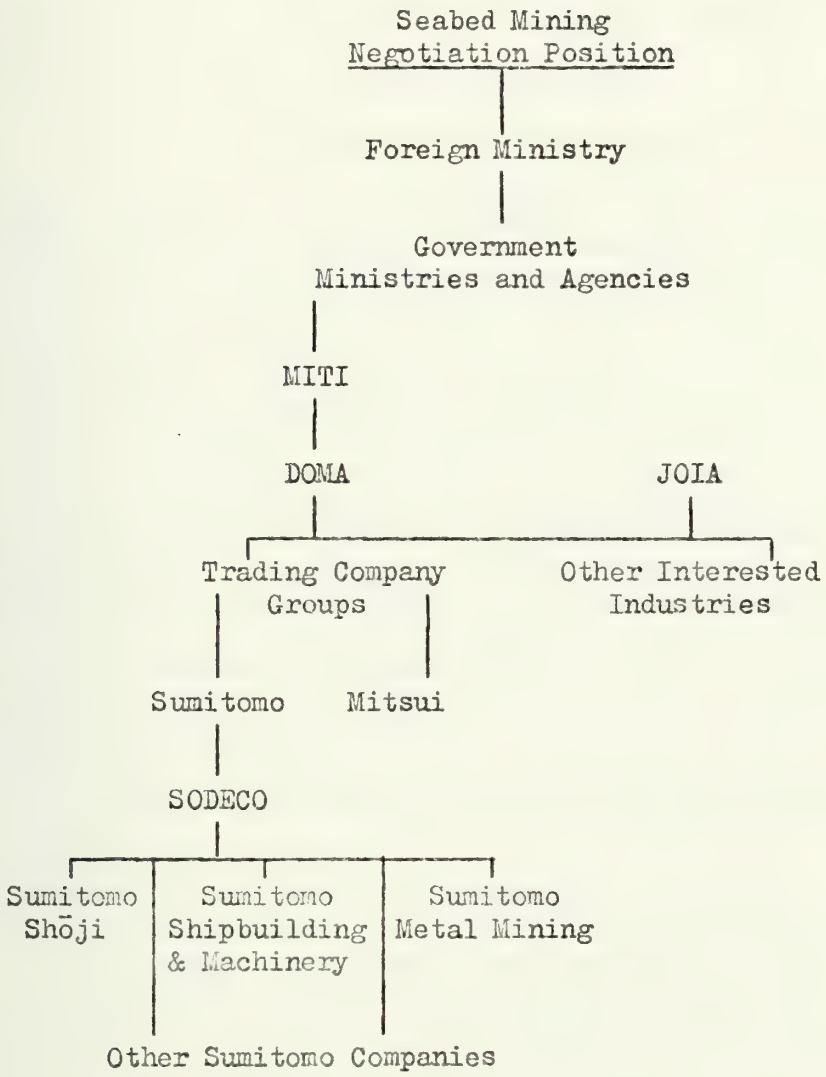
[62] FEER, August 6, 1973, p. 37.

[63] I am indebted to the personnel of Sumitomo Shōji America, Inc. for assistance in the preparation of this example.

Figure 10-1

ORGANIZATIONAL RELATIONSHIPS INVOLVED IN SUMITOMO MANGANESE NODULE MINING (SUPERIMPOSED ON DIVERSE INTERPERSONAL TIES)



the competitiveness of such ventures, their management recently has been coordinated within a newly-formed Ocean Development and Engineering Company (SODECO). The directorate of SODECO is drawn from the officers of the concerned Sumitomo companies, who usually will hold multiple appointments.

Thus, future projects in seabed mining will be balanced by SODECO against other ocean programs. Budget requests will be forwarded to the Sumitomo Bank for consideration along with proposals from other companies in the group. Finally, if approved, the funds would be disbursed (effectively subcontracted) through SODECO to the appropriate firm. Although, in most cases, the companies which had done the work prior to the formation of SODECO will continue to get the contracts, this system offers better coordination. Equivalent mechanisms operate within the other trading company groups.

However, according to SODECO President Nishimura Tsunesaburo:

> There is no sector in ocean development fields which is small enough for a single company to tackle on its own. All ocean development firms have to cooperate with one another if they really want to produce results. The Government, on its part, should select several high priority projects for the companies to pour everything in [sic]. Dispersing emphasis on an unwieldily [sic] large number of projects will come to nothing.[64]

In order to facilitate this policy coordination process, the Deep Ocean Minerals Association (DOMA) was formed early in

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[64] NKIW, October 23, 1973.

1973. Managed by representatives from five trading companies and including 27 firms from the mining/smelting shipbuilding and steel industries, it was designed to channel communications to and from MITI. A year later DOMA was transformed into a legal entity (hōjin) as the Deep Seabed Minerals Resources Development Association. Additional consultations are conducted through the more broadly-based Japan Ocean Industries Association (JOIA).

While proposals are discussed between commercial interests and their ministries, a similar process is underway within the government itself. An "International Conference on the Law of the Sea Preparations Promotion Headquarters" was set up prior to the Geneva Seabed Committee meeting to draw inputs from interested parts of the bureaucracy.[65] In theory positions thus derived are presented by the Foreign Ministry for international negotiation. The inability to agree on a forward-looking position for Caracas, however, is indicative of some of the rigidities in the system.

Although this summary has focused on ocean mining, it is representative of arrangements in other industries. For instance, there is the Japan Fisheries Association to link fishermen and the Ministry of Agriculture and Forestry (though it often is by-passed). Several zaibatsu recently have withdrawn from a Japanese multi-group venture, strengthened their individual oil development companies and immediately begun to coordinate negotiations for joint explorations with American firms in

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[65] Sankei, June 25, 1973.

Southeast Asia waters.[66]

These organizations are, of course, superimposed on the myriad of previously noted inter-personal ties. It is thus difficult to separate a private stance from an official one. Rarely in these circumstances will an interest group resort to public pronouncements to try to bring pressure on the government. On the other hand, it can be certain that its point of view at least has been considered in some phase of the policy-making process.

Dr. Craven, pointing to this cooperative approach, and the level of government investment in private industry, concluded that Japan "most closely approximates the ideal national manager for ocean resources."[67] Moreover:

> There is a long range plan and goal which considers the total system including environmental protection and there are national resources of significant amounts to implement the resource development plan. The departure from the system manager idealization is primarily in the fact that the industry response to national planning is tacit rather than explicit.[68]

Although it certainly is true that Japan is closer to an idealized ocean system manager than the U.S. or Great Britain, there are more serious weaknesses than may be apparent.

In the first place, the government itself is by no means

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[66] Nikkan Kōgyō, June 16, 1973.

[67] Craven, op. cit., p. II-997.

[68] Ibid., p. II-949.

monolithic. Each of the ministries is, in many ways, a fiefdom.[69] Within the ministries disputes can be resolved by consensus before external positions are presented. But between the ministries, neither the resolution of differences nor adequate cooperation is by any means assured. The Caracas negotiations, as already noted, highlighted this, and such examples of disarray are likely to continue as Japan reorients its national goals from economic growth to social welfare.

Another example of a lack of bureaucratic coordination is provided by the case of ocean surveys. Currently, these are conducted by the MSDF, the Agriculture and Forestry Ministry, and the Transportation Ministry. Additional surveys involving petroleum development are conducted under MITI. JAMSTEC is keyed to man in the sea projects, but MSDF cooperation is excluded by pressures for the separation of civil and military activities.[70]

A second problem is a surprising disinclination to engage in really innovative planning. The mistrust of long-range planning in Japan stems in part from a view that major world movements will be largely independent of her own efforts. There is thus little point in setting forth extended programs in pursuit of fixed goals when one has so little control over the events

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[69] See, for instance, Kusayanagi Daizo, "A Kingdom of Bureaucrats: The Finance Ministry," Bungei Shunji, July 1974, translation in Magazine Summary, July 1974, pp. 6-20.

[70] VADM Kitamura Kenichi, MSDF (Ret.), interview, August 14, 1974 and Odani Kōsuke, interview, December 9, 1974.

which might prove critical. Once again, as in her diplomacy, this leads to strategies which maximize options at each step.

A final point is a relatively low level of financing. Japan's Governmental Marine Development Program totaled approximately $100 million in Fiscal 1974 (April 1974-March 1975).[71] Over 66 million of this was devoted to the Okinawa Exposition, however. By contrast, the non-"national security" portion of the U.S. Federal Ocean Program for Fiscal 1975 (July 1974-June 1975) equals $641 million[72]--nearly 19 times that which Japan is devoting to similar purposes. Such comparisons admittedly are inexact because of undetermined levels of private spending, but the imbalance certainly is significant.

In point of fact, a modest level of Research and Development spending long has been characteristic of Japanese business (with the possible exception of fisheries). This is consistent with the joint venture approach to new technology, evidenced in ocean mining. By waiting for foreign firms to do the pioneering research and then providing capital at a later stage in the development process, the risk in both funds and wasted effort is greatly reduced, although the final cost in license fees and patents may be more expensive. Such an approach offers great flexibility, but it also may mean significant time lags before

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[71] MDP 74, op. cit.

[72] Larry L. Booda, "Federal Ocean Program Budget Request Up $64 Million," Sea Technology, XV (March 1974), p. 25.

Japan can take advantage of new opportunities in the rapidly changing ocean development field.[73]

Non-Military Seapower and Japan's Interests

Protective Maritime Ventures

One of the ways in which Japan can use her seapower is to insulate herself from the effects of others' actions. This will be termed protective seapower. The MSDF, of course, is specifically designed for this purpose, but commercial activities also may contribute.

National security has been one of the classic rationales for a strong merchant marine--guaranteed capacity in time of emergency. Such arguments still can be heard, but trends to multi-national crews, long-term charters, international insurance markets and other economies of modern shipping will make it harder to ensure Japan's control over large fleets even should they still fly her flag. In general, however, this will be less troublesome than it once might have been because the internationalization of maritime commercial linkages has affected almost everyone.

Still, there may be problems. The transfer of control of the tanker fleets to Arab states will undeniably make the industrialized world more vulnerable in future confrontations.

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[73]Admiral Nakayama Sadayoshi, MSDF (Ret.), interview, August 14, 1974.

Moreover, non-Japanese crews might refuse to sail in the face of some of the threats outlined in the previous chapter. Japan's encouragement of both of these trends has been dictated by her resources diplomacy on the one hand, and profitability on the other. Although the results are antithetical to her security in the sense of protective seapower, there is little that can be done to change them. The national merchant marine, insofar as it exists, will continue to provide her with a buffer, but this will play a subordinate part in future policy decisions.

The protective role of the shipbuilding industry lies in its ability to replace war/terrorist losses.

Since resources are Japan's principal vulnerability, however, the real protective value of her seapower will be the extent to which it can contribute to self-sufficiency. At present, there is no indication that ocean resources ever will be able to make Japan independent of foreign suppliers, but data are hard to come by. In the first place, long range forecasts are regarded suspiciously, as noted earlier. In the second, the events of late 1973 destroyed the basis of nearly all the planning that did exist. They also introduced such uncertainties as to cast doubt on any studies which have tried to take them into account. Finally, in the case of new ocean resources, there simply is too little information as yet.

Even before the extensions of national ocean claims, fisheries imports were expected to increase. It is possible

that new species, aquaculture and mid-ocean fishing grounds may offset the losses expected from the North Pacific economic zones. The harvesting of krill might even increase the total catch. But without changes in the Japanese diet, there still will be a demand for imports of seafood.

The limited near-term potential of Japanese off-shore petroleum already has been noted. Detailed surveys of minerals on her continental margins are just beginning. Except for manganese nodules, which will be mined by foreign (U.S.) ships for the next few years, abyssal resources hardly have been studied at all. Regarding the nodules, incidently, a hypothetical 33 percent Japanese interest in a 3,000,000 ton per year operation might yield results as noted in Table 10-1.

Table 10-1

POSSIBLE NODULE METALS PRODUCTION AS A PERCENT OF 1972 JAPANESE DEMAND

Metal	Approximate Production (A)	1972 Japanese Demand (B)	(Metric Tons) A/B
Manganese (if recovered)	230,000	n.a.	n.a.
Nickel	15,000	26,315	.57
Copper	13,000	927,679	.02
Cobalt	2,000	2,558	.78

Source: (A) United Nations, Economic Implications of Sea-Bed Mineral Development in the International Area, p. 28.

(B) Nihon Tōkei Nenkan 1973-74, Table 170.

It is evident that these outputs, while useful in reducing some imports, will not be a panacea. Indeed, this would seem to apply as a general statement about the protective value of all of Japan's seapower. Even as an oceanic state, relying on heretofore untapped wealth from the sea, it will be many decades, if ever, before Japan could begin to consider herself detached from foreign economic pressures.

Acquisitive Maritime Ventures

Acquisition, of course, is the usual goal of all marine economic activities--to win either profits, resources, or foreign exchange. Nonetheless, Japan's ocean-related industrial capacity and technological expertise (which thus are elements of her seapower) have opened new ways for her to gain access to markets and raw materials. In turn, many of these efforts also may reduce the incentive to take action against Japanese operations.

First among these are joint ventures, which have become especially important to fishermen. As of March 1973, Japanese firms were involved in 96 such projects in 43 countries,[74] and several have been established since, particularly in Africa and the Middle East. Foreign subsidiary and joint venture shipyards have been operating for years, for instance in Brazil and Singapore. However, overtures to Persian Gulf States since 1973 have

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[74]Suisanchō, Suisangyō No Taisuru Taigai Shihon Kyōryoku Jigyō no Genjō (Present Situation of Overseas Joint Ventures Facing Fishing Industries), Tōkyō, July 1974.

been designed as much to improve Japan's standing in the struggle for oil as for profit. In the same vein, joint tanker companies have been established with Iraq, Abu Dhabi and Saudi Arabia.[75]

Marine-related technological assistance is another way of approaching the problem. The Foreign Ministry and an industry source known as the Overseas Fishery Cooperation Fund have set up a fund for loans to developing country fisheries which could grow as large as 15 billion yen ($50 million).[76] The above-mentioned shipping agreements also include provisions for the progressive phase-out of direct Japanese participation as local competence develops. Thus they eventually also may become oriented towards technological assistance. This encouragement of the merchant marines of strategic coastal states, whatever competition it may generate for Japanese vessels in the short run, could well work to her long-run interests by increasing their stakes in minimum restrictions on maritime commerce.

Finally, there are barter arrangements. Ships, for example, or fishing equipment, could be built in Japan with domestic funds and then exchanged for resources to save foreign currency.

The majority of maritime commercial affairs probably will

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[75] Nihon Keizai, March 19 and July 16, 1974.

[76] Suisan Keizai, January 9, 1974. This compares to Japanese investment of $30.5 million in the 96 joint ventures noted above.

continue to be profit-motivated. Moreover, such cooperative arrangements outlined above are possible in fields that have nothing to do with the oceans. Nonetheless, Japan is well-suited to take advantage of the growing global interest in marine industries to secure a variety of goods and services.

Suasive Measures[77]

Japan would seem to have few means by which to exercise suasion. She has renounced the "threat of force as a means of settling international disputes."[78] She also has sought to separate politics and economics in her international dealings. There are few signs that she will alter the deployments of the Self-Defense Forces (outside of an extended economic zone). However, domestic and foreign circumstances may enable her to exert more international pressure through non-military ocean activities.

For one thing, Japan may be changing her policy to include broad connections between political, economic and social conditions, especially in relation to the Third World. Distinct economic issues with diverse political overtones also may be increasingly linked in the future.[79]

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[77]Edward Luttwak, op. cit. (note I-5), has discussed the uses of naval forces as an exercise of "armed suasion." These may be latent (i.e. undirected) or active. The latter in turn can be broken down into deterrence and compellance. Herein, this typology will be extended to non-military seapower as well.

[78]Article IX of the Constitution.

[79]It was reported, for instance, during President Ford's 1974 visit to Tōkyō, that Japanese concessions on fisheries were offered in exchange for guarantees of food supplies.

For another, the manipulation of currency markets, large-scale investments and commodity flows have become weapons of great consequence. Perhaps even more importantly, they have become generally recognized as legitimate alternatives to military power under many circumstances.

Japan's seapower, indeed most of her economic programs, can operate most effectively in latent or deterrent modes. For instance, efforts to promote interdependence through bi-lateral shipping or fisheries agreements could give Tōkyō some positive counter-leverage. Attractive technology transfer provisions with joint ventures could reduce the incentives for nationalization, although local political and emotional concerns might easily override such rationality. In the same way, long-term shipyard or ocean development projects would be difficult to complete by developing country assets alone.

The advantages of promoting coastal state interests in shipping or distant-water fishing already have been noted.

Under some conditions, merchantmen can act as "trip wires" almost as well as warships. Soviet freighters limited U.S. freedom of action in Haiphong, for instance. An American tanker tested the blockade of the Straits of Tiran in 1967. It may be argued that this influence was derived only from the military power of the two superpowers and the perception of a merchant ship as the symbol of state interests on those particular occasions. This may well be correct. But though Japan does not

have the military power to act on her own behalf, one of her ships could be persuasive if it was seen as the representative of most maritime powers on a given issue, i.e. the levying of straits tolls. Alternatively, if the domestic situation in Japan were unsettled, interference with her merchantmen or ocean development projects might be deterred on the grounds that it could stimulate an MSDF dispatch, with all the associated uncertainties. Finally, merchantmen capable of self-defense could be used to prevent the establishment of undesired precedents by ignoring unilateral declarations of restrictions to navigation.

It is difficult to imagine Japan exercising much more active suasion, either through her military or commercial activities in the next several years. Were she to begin to, however, the signs would be visible first at the fringes of her ocean resources zone.

CONCLUSIONS

This paper has recommended several specific programs for the Maritime Self-Defense Force and Japan's commercial ocean interests. These results are based on two fundamental conclusions.

The first is that world-wide technical, political and legal developments will force major adjustments in national maritime policies. In particular, these developments include: (1) A shifting image of the sea itself from a neutral medium of communications and commerce to a territorial area with intrinsic value, (2) asymmetries in the acceptability of force between developed and developing states, (3) the current state of naval technology, which favors the defenders of inshore areas, (4) the increasing economic and political importance of near-shore ocean interests and (5) the erosion of the foundations of freedom of the seas. Whether or not such changes will offer new opportunities or foreclose long-standing advantages, Japan must consider them more carefully in her policy-planning.

The second conclusion is that projections of a militaristic future for Japan, or even an expanded security role, are overdrawn. In the face of pollution, resources nationalism, impending earthquakes and other hazards, arguments can be made for the impossibility of maintaining Japan's present course, but there is

almost no evidence that she will choose an expansionist path in the near future. Domestically the opposition to such a role is widespread and vocal. Internationally there are few states which would either encourage or welcome it. Moreover, though the economic and idealistic orientation of Japanese nationalism might lead to strains between Washington and Tōkyō, it shows little sign of turning militaristic. An authoritarian government, and perhaps a nuclear weapons program are possible, but Japan's physical limitations and vulnerabilities would make foreign adventurism very risky. By the same token an increase in tensions in Northeast Asia would be more likely to drive Japan back towards the United States, rather than off on her own. The most likely course is a continuation of an opportunistic, low-risk foreign policy with expenditures on conventional weaponry remaining at about one percent of GNP while non-military security spending is increased.

Within this framework, more specific issues of Japanese seapower were analyzed. For all the constraints which her physical situation puts on expansive or aggressive activities, Japan also has strengths which are less frequently recognized. Her island status, topography and the limits of her neighbors' amphibious capabilities would make direct invasion difficult. Surface-skimming patrol craft, anti-ship missiles and improved coordination between the MSDF and ASDF could further increase an attacker's problem. At the same time, the size of her merchant marine, shipbuilding capacity and other factors will reduce the

impact of a submarine campaign against the sealanes. Japan could strengthen her defenses in this area by the use of unconventional concepts, such as containerized weapon systems for merchantmen. Although mines may pose a serious threat to the harbors and choke points of the archipelago, they also can be extremely effective in the narrow straits which control Soviet passage to and from the Sea of Japan.

In time, the demands of near-shore ocean activities probably will compel Japan to extend her own territorial sea and economic zone. This will be a major change whose impact will extend beyond the realm of ocean politics. In the first place, the expanded ocean area will be nearly ten times as large as the home islands themselves. In fact, under a 200-mile limit, Japan would acquire the seventh largest maritime zone on earth. As ocean development activities intensify, the psychological attractiveness of the additional productive territory could become very important for a nation which has long been sensitive about its population and lack of space.

In the second place, the extension of jurisdiction will bring her oceanic borders with seven states, along with several boundary disputes. Many of these quarrels probably will be settled diplomatically or officially ignored in the interests of larger issues. Some, however, may contain the seeds of future violence, particularly with Taiwan and Korea.

Finally, the task of defending, or even monitoring such an

area will require improvements in MSDF and Maritime Safety Agency ships, surveillance equipment and command and control facilities.

The concepts of protective, acquisitive and suasive seapower were introduced with particular emphasis on Japan's commercial ocean activities. So long as she is vulnerable to countermeasures at so many points, Tōkyō's options for maritime suasion, through military or commercial means, are limited. The major values of protective seapower will be to increase fisheries yield within the extended economic zone and to improve marine pollution control techniques. Ocean resources will play an increasingly important part in Japan's economy, but they will only marginally reduce her dependence on raw materials imports. Acquisitive ocean ventures, however, can contribute greatly to the uncertain future. As ocean economic activities become increasingly important world-wide, Japan should be well-placed to trade on her stores of marine-related capital and expertise.

Japan's ocean activities could be managed more effectively. The model of a smoothly-coordinated, rational animal, guided by long-range planning has many weaknesses, at least in the area of ocean affairs. The nation would profit by better planning and intra-bureaucratic coordination at the least, and possibly by higher levels of research and development spending as well. One can understand the attractiveness of strategies which maintain flexibility, but the lead times involved in modern industrial projects, as well as their multiple side-effects do seem to

warrant greater emphasis on forecasting.

In sum, the next decade is likely to see Japan's seapower used to support opportunistic strategies in pursuit of interests similar to those which exist today. Near-shore activities and extensions of jurisdiction probably will be emphasized while distant-water programs fall more and more under multinational control.

Appendix One

UNITS CONVERSION TABLE

Units of Length

Units	Inch	Foot	Meter	Mile	N.M.
1 inch	1	.083	.025	-	-
1 foot	12	1	.305	-	-
1 meter	39.37	3.28	1	-	-
1 mile	63,360	5,280	1,609	1	.869
1 naut. mile	72,913	6,076.1	1,852	1.151	1

Units of Area

Units	Acre	Hectare	Sq.km.	Sq.mi.	Sq.n.m.
1 acre	1	.405	.004	.002	.001
1 hectare	2.471	1	.01	.004	.003
1 sq. km.	247.11	100	1	.386	.292
1 sq. mile	640	258.9	2.589	1	.755
1 sq. n.m.	847.4	195.5	1.955	1.324	1

Units of Mass

Units	Pound	Kilogram	Sh.Ton	Long Ton	Metric Ton
1 pound	1	.454	-	-	-
1 kilogram	2205	1	.001	.001	.001
1 short ton	2000	907.2	1	.893	.907
1 long ton	2240	1,016.0	1.12	1	1.016
1 metric ton	2204.6	1,000.0	1.102	.984	1

Units of Volume

Units	Liter	Gallon	Cubic Foot	Cubic Meter
1 liter	1	.264	.035	.001
1 gallon	3.785	1	.133	.004
1 cubic foot	28.317	7.840	1	.028
1 cubic meter	1,000	276.9	35.315	1

Temperature

$F = 9/5\ C + 32$ $\qquad 0^{\circ}C = 32^{\circ}F$

$C = 5/9\ (F - 32)$ $\qquad 100^{\circ}C = 212^{\circ}F$

Other Measures

Water

1 cubic ft. = 62.4 lbs.

25.96 cubic ft. = 2240 lbs.

Crude Oil

1 barrel (bbl) = 42 gallons

1 metric ton = 7.33 bbls.

1 bbl/day = 49.8 tons/year

1 kiloliter = 6.29 bbls.

Energy Conversions

1 bbl. crude oil = 5.60×10^6 Btu

1 kwh electricity = 3,413 Btu

1 cu. ft. day natural gas = 1,031 Btu

1 short ton of avg. coal = 27.7×10^6 Btu

SELECTED BIBLIOGRAPHY

Much of the information in this paper was gathered from personal interviews, particularly in Parts Two and Three. Many of the subjects spoke excellent English. Interpreters were available in most cases when there was any doubt. Information from interviews conducted in Japanese by the author was checked against other sources to prevent misunderstandings. Of the 131 interviews conducted during the Southeast Asia trip, many did not pertain directly to Japan, although collectively they were designed to give a picture of regional seapower. Accordingly, only those most closely related to this thesis have been cited here. Those names marked with an asterisk were consulted on a continuing basis during the author's stay in Japan.

Some of the information presented in Part One may be considered classified by some persons. No reference was made to classified materials during this research, in fact potentially useful background sources frequently were avoided to preclude the danger of inadvertent citation. When there was any doubt, data were not used unless they could be documented from the open literature.

Interviews

Abe Yuzo, Captain, JMSDF. April 9, 1974; December 11, 1974.

Aoki Sōtaro. Tokio Marine and Fire Insurance Company. November 25, 1974.

Armacost, Michael. American Embassy, Tōkyō. March 29, 1974.

Auer, James E., Lieutenant Commander, USN. USS Parsons (DDG-33). *

Baker, Roland. Naval Ordnance Test Station, China Lake. October 18, 1974 (telephone).

Blake, James. Geological Services, Ltd., Singapore. May 30, 1974.

Bonner, Robin, Commander, RAN. Central Studies Establishment, Canberra. June 19, 1974.

Bull, Hedley. Australian National University, Canberra. June 19, 1974.

Burke, Arleigh A., Admiral, USN (Ret.). January 16, 1974.

Chee, Dr. Stephen. Universiti Malaya. May 24, 1974.

Cheng Quee Wah. Singapore Shipbuilding and Engineering Company. June 5, 1974.

Chihaya Masataka. Shipping and Trade News (Tōkyō). November 28, 1974.

Clark, Marc, Commander, RAN. Central Studies Establishment, Canberra. June 19, 1974.

Craven, John P. Director of Marine Programs, University of Hawaii. July 5, 1974.

Dickstein, Howard. Universiti Malaya. May 23, 1974; May 24, 1974; May 27, 1974.

Dixon, Frank W., Colonel, USA. Defense Attache, Philippines. May 13, 1974.

Dōba Hajime. Defense Correspondent, Yomiuri Shimbun. December 11, 1974.

Duke, Marvin L., Captain, USN. U.S. Naval Attache, Tōkyō. August 8, 1974.

Eguchi Yujiro. Nomura Research Institute. April 2, 1974.

Fatasi, Mito. Southeast Asia Fisheries Research Center, Singapore. May 30, 1974.

Fukui Shizuo, Constructor Lieutenant Commander, IJN (Ret.). *

Fukushima Yasuto. Professor, National Defense College. March 20, 1974.

Fusano Natsuaki. Assistant Director, Office of Defence Production Committee, Keidanren. August 6, 1974.

Fuse Tsutomu. Graduate Student, International Law. *

Gannon, James M., Captain, USN. Naval Attache, Singapore. May 28, 1974.

Genda Minoru. Member, House of Councillors. December 12, 1974.

Gorter, Wirtze. University of Hawaii. July 3, 1974.

Graham, H. Edward, Captain, USN. Naval Attache, Thailand. May 22, 1974.

Habanananda Kajit. Executive Officer, Kra Canal Survey Office, Bangkok. May 21, 1974; May 22, 1974.

Harper, Donald. Ministry of Defence, Wellington. June 26, 1974.

Hashim, Zain, Brigadier General. Commandant, Armed Forces Staff College, Malaysia. May 25, 1974.

Hayashi Y., Captain, ASDF. Defense Academy. April 25, 1974.

Heredia, Armando, Lieutenant, Philippine Navy. May 13, 1974; May 14, 1974.

Inoki Masamichi. President, Defense Academy. April 4, 1974.

Ishida Minoru. Ishikawajima-Harima Heavy Industries Co., Ltd. (Ocean Engineering Structures). August 14, 1974.

Ito Keiichi. Assistant Director of Defense Bureau, Japan Defense Agency. November 25, 1974.

Johnson, Robert Lee. Vice President, Mobil Sekiyu Kabushiki Kaisha, Tōkyō. July 16, 1974.

Jukes, Geoffrey. Australian National University, Canberra. June 18, 1974.

Kaihara Osamu. Former Secretary General, National Defense Council. March 24, 1974.

Kamura Hiroshi. Japan Center for International Exchange. April 10, 1974; April 12, 1974.

Kanagaki Shigeru, Rear Admiral, JMSDF (Ret.). Defense Production Councilors' Room Keidanren. August 6, 1974.

Kato Fumihisa. Ministry of Transport. April 22, 1974.

Kawasaki Kanji. JSP Member, House of Delegates. April 17, 1974.

Kitamura Kenichi, Vice Admiral, JMSDF (Ret.). Former Commander, Self-Defense Fleet. *

Klass, Philip J. Aviation Week and Space Technology Magazine. October 8, 1974 (telephone).

Kogan, Rudolf, Colonel, USA. Defense Attache, Singapore. May 29, 1974; June 3, 1974.

Kubo Takuya. Chief, Defense Bureau, Japan Defense Agency. March 11, 1974; November 25, 1974.

Kully, Sheldon D., Captain, USN. Naval Attache, Republic of China. May 6, 1974.

Kunishima Kiyonori, Vice Admiral, JMSDF. President, Maritime Staff College. April 5, 1974.

Kusumi Tadao. Defense Analyst. March 1, 1974; April 18, 1974; August 17, 1974.

Lansangan, Jose G., Jr., Captain. Philippine Navy. May 14, 1974; May 16, 1974.

Lewis, Theodore, Commander, USN. Defense Liaison Group, Indonesia. June 7, 1974.

MacDonald, Gerald E., Major, USMC. Assistant Naval Attache, Bangkok. May 17, 1974.

Mataxis, Theodore C., Brigadier General, USA (Ret.). Ministry of Defence Consultant, Singapore. May 29, 1974; May 30, 1974; June 4, 1974.

MccGwire, Michael. Dalhousie University, Halifax. October 21, 1974; December 21, 1974 (letter).

Millar, T. B. Australian National University, Canberra. June 20, 1974.

Mitchell, J. T., Colonel, USMC. Naval Attache, Indonesia. June 9-11, 1974.

Momoi Makoto. Professor, National Defense College. January 15, 1973; February 28, 1974.

Nakai Yoko. United States Information Service, Tōkyō.*

Nakamura Teiji, Vice Admiral, JMSDF. Commander, Self-Defense Fleet. December 3, 1974.

Nakao Eichi. LDP Member, House of Delegates (Seirankai). April 19, 1974.

Nakayama Sadayoshi, Admiral, JMSDF (Ret.). August 14, 1974.

Nelson, Roger L. Triton Oil and Gas Co., Manila. May 15, 1974.

Oberdorfer, Don. The Washington Post, Bureau Chief, Tōkyō. April 4, 1974; August 6, 1974.

Oblena, Grace Carla. Chief, Shipping and Freight Study Unit, Department of Transportation, Republic of the Philippines. May 15, 1974.

Odani Kōsuke. Head, Technical Information Service, Japan Marine Science and Technology Center (JAMSTEC).*

O'Farrell, J. A., Captain, RAN. Maritime Air Study Group. June 19, 1974.

Okamura Kenji. Chairman, Japan National Committee for Engineering Committee on Ocean Resources (ECOR). December 8, 1974.

Okuhara Toshio. Assistant Professor of International Law, Kokusikan University. *

O'Neill, Robert J. Australian National University, Canberra. June 20, 1974.

Ōshima Kenzō. Ministry of Foreign Affairs, Law of the Sea Headquarters. April 5, 1974; April 12, 1974.

Page, George L., Captain, USN. Naval Attache, Australia. June 17, 1974.

Pee, Peter. Professor, University of Singapore. May 29, 1974.

Peek, Sir Peter, Vice Admiral, RAN (Ret.). Former Chief of Australian Naval Staff. June 19, 1974.

Primrose, B. N. Australian National University, Canberra. June 17, 1974.

Rogers, W. Haley, Rear Admiral, USN. Commander, U.S. Naval Forces, Japan. February 19, 1974.

Rōyama Michio. Professor, Sophia University. January 9, 1973; August 5, 1974.

Rubey, E. B., Jr., Captain, USN. Naval Attache, New Zealand. June 25, 1974; June 26, 1974.

Saeki Kiichi. Director, Nomura Research Institute. December 11, 1974.

Sakanaka Tomohisa. Political Correspondent, Asahi Shimbun. March 13, 1974; November 26, 1974.

Sakurai Kiyohiko. Managing Director, Jurong Shipyard Ltd., Singapore. May 30, 1974.

Samejima Hiroichi, Admiral, JMSDF. Chief of the Maritime Staff. March 28, 1974.

Santos, Gonzalo M., Captain. Philippine Navy. Executive Vice President, National Defense College, The Philippines. May 14, 1974.

Sekino Hideo, Commander, IJN (Ret.). Military Analyst. *

Senō Sadao, Commander, JMSDF. March 6, 1974; November 29, 1974; December 12, 1974.

Shaw, K. E. Nanyang University, Singapore. June 5, 1974.

Shinohara Hiroshi. Special Reporter on Defense, Political News Division, Asahi Shimbun. March 6, 1974; November 25, 1974.

Sitwell, D. W. Vosper Thornycroft Private, Ltd., Singapore. June 3, 1974.

Spivakovsky, David. Central Studies Establishment, Canberra. June 19, 1974.

Stunkel, Kenneth R. Professor, Monmouth College. December 28, 1974.

Taoka Shunji. Defense Correspondent, Asahi Shimbun. *

Thorne, E. C., Rear Admiral, RNZN. Chief of Naval Staff. June 28, 1974.

Tsunoda Jun. National Diet Library. *

Uchida Kazutomi, Admiral, JMSDF (Ret.). November 29, 1974.

Varrell, Derek. Australian National University, Canberra. June 20, 1974.

Viccelio, John S., Commander, USN. Assistant Naval Attache, Tōkyō. February 20, 1974.

Walsh, Don, Captain, USN. October 22, 1974; January 3, 1975.

Yamaguchi Kaiji, Captain, JMSDF. March 6, 1974; December 12, 1974.

Yamamoto Takashi. Ministry of Transport. December 2, 1974.

Yamashita Tokuo. LDP Member, House of Delegates; Member, Dietmens League on the Ocean. April 17, 1974.

Yamato Kunitami. Maritime Administration, American Embassy, Tōkyō.*

Yamazumi Akira, Captain, MSDF. Head, Foreign Liaison Section, Maritime Staff Office. *

Unpublished Material and Public Statements

Burleson, Hugh L. "The Nixon Doctrine in Northeast Asia: Strategic Implications of Japanese Relations." Carlisle Barracks, Pa.: U.S. Army War College, April 18, 1973.

Blackwell, Robert J. Assistant Secretary of Commerce for Maritime Affairs. Statement before the Sea Power Subcommittee of the House Armed Services Committee. September 19, 1974 (Mimeo).

Hughes, Michael Bryant. "Japan's Air Power Options: The Employment of Military Aviation in the Post-War Era." Unpublished Ph.D. dissertation, Fletcher School of Law and Diplomacy, 1972.

Ino Takashi. "Marine Parks in Japan." (Typewritten).

Japan Engineering Committee on Ocean Resources. "Status Report of Sea-Bed Exploration and Exploitation Technology in Japan 1972." (Xerox).

Japan Marine Science Technology Center. "Brief List of the Government R & D Projects Relevant to Marine Development." Yokosuka: February 1974.

_____. "Governmental Marine Development Program (by general account) of Japan for 1974 Fiscal Year, by Ministerial Agency." Yokosuka: April 1974 (Mimeo).

Japan Ocean Industries Association. "JOIA." Tōkyō, March 30, 1974.

Keidanren. Defense Production Committee Secretariat. "Chotatsukaku no Jittai ni Kansuru Chōsa Kenkyū Hokokusho." ("Investigative Research Report Concerning the Realities of Procurement Costs.") Tōkyō, 1973 (Xerox).

Kra Canal Project. "Preliminary Survey Report: A Summary." Revision 5. Bangkok: K. Y. Chow, April 30, 1974.

Martin, Laurence W. "The Role of Force in the Ocean." Paper presented to the School of Advanced International Studies Conference on "Conflict and Order in Ocean Relations," October 22, 1974.

Sekino Hideo. "Implications for Japan and Far East: Some Strategic Problems." April 1969 (Mimeo).

_____. "Significance of Sea Power for Maritime Nations." (Typewritten).

Sissons, D. C. S. "Japan in the 1980s." Canberra, February 1971 (Mimeo).

Taoka Shunji. "Japan's Strategic Situation and the U.S. Military Presence." (Typewritten).

Weinstein, Martin E. "Japan's Foreign Policy Options in the Coming Decade." September 1973 (Xerox).

Basic Reference Works and Government Documents

Jane's All The World's Aircraft. London: Sampson Low, Annual.

Jane's Fighting Ships. London: Sampson Low, Annual.

Jane's Surface Skimmers. London: Sampson Low, Annual.

Jane's Weapon Systems. London: Sampson Low, Annual.

Japan. Defense Agency. The Defense of Japan. Defense White Paper. Tōkyō: Defense Agency, 1970.

_____. Defense of Japan 1973. Tōkyō: Defense Agency, 1973.

_____. Japan's Fourth Five Year Defense Plan. Tōkyō: Defense Agency, 1972.

_____. Kuni no Mamori ("National Defense"). Tōkyō: Defense Agency, 1973.

Japan. Environment Agency. The Quality of the Environment in Japan. Tōkyō: Environment Agency, December 1972.

_____. Water Pollution Control in Japan. Tōkyō: Environment Agency, May 1972.

Japan. Fisheries Agency. Gyogyō Hakusho Shōwa 48 ("Fishing Industry White Paper FY 1973"). Tōkyō: Fisheries Agency, 1974.

_____. Shinkai Gyojō Kaihatsura Suishin Hosaku Kenkyūkai Hōkokū ("Research Society Report on Promotion Plans for Deep Sea Fishery Grounds Development"). Tōkyō: Fisheries Agency, July 1974.

_____. Suisan Tōkei Shihyō #4 ("Fisheries Statistics Index #4"). Tokyo: Fisheries Agency, June 1974.

_____. Suisangyō no Taisuru Taigai Shihon Kyōryoku Jigyō no Genjō ("Present Situation of Overseas Joint Ventures Facing Fishing Industries"). Tōkyō: Fisheries Agency, July 1974.

Japan. Ministry of Agriculture and Forestry. Abstract of Statistics on Agriculture, Forestry and Fisheries 1973. Tōkyō: Ministry of Agriculture and Forestry, 1973.

_____. White Paper on Agriculture, 1973. Tōkyō: Ministry of Agriculture and Forestry, 1974.

Japan. Ministry of Foreign Affairs. The Northern Territorial Issue. Tōkyō: Ministry of Foreign Affairs, 1970.

_____. Statistical Survey of Japan's Economy, 1972. Tōkyō: Ministry of Foreign Affairs, 1972.

Japan. Ministry of International Trade and Industry. Statistics on Japanese Industries, 1973. Tōkyō: Ministry of International Trade and Industry, 1973.

_____. 1974 Tsūshō Hakusho (1974 International Trade White Paper). Tokyo: Ministry of International Trade and Industry, June 1974.

Japan. Ministry of Transport. Nihon Kaiun no Genkyō (Present Condition of Japanese Shipping). Tokyo: Ministry of Transport, July 20, 1974.

_____. Transportation White Paper, 1974. Tōkyō: Ministry of Transport, 1974.

Japan. National Police Agency. National Police Agency White Paper, 1973. Tōkyō: National Police Agency, 1973.

Japan. Prime Minister's Office. Kokusai Tōkei Yoran.("International Statistics Handbook"). Tōkyō: Prime Minister's Office, March 1974.

_____. Statistical Handbook of Japan, 1971. Tōkyō: Prime Minister's Office, June 1971.

_____. 1974 White Paper on Youths. Tōkyō: Prime Minister's Office, 1974.

Japan. Science and Technology Agency. Kaiyō Kaihatsu no Genjō to Tembō ("Present Situation of and Prospects for Ocean Development"). Tōkyō: Science and Technology Agency, November 1973.

_____. Marine Development in Japan 1972. Tōkyō: Science and Technology Agency, 1972.

Japan Times. Japan's Shipbuilding and Shipping, 1974 Survey. Tōkyō: Japan Times, 1974.

Japanese Shipowners Association. Review of Japanese Shipping 1973. Tōkyō: 1974.

Jieitai Sōbi Nenkan '73 ("Self-Defense Force Equipment Yearbook"). Tōkyō: Asagumo Shimbunsha, 1973.

Mainichi Daily News. Industries of Japan, 1974. Vol. 17. Tōkyō: Mainichi, 1974.

Malaysia. Ministry of External Affairs. Indonesian Aggression Against Malaysia. Vol. II. Kuala Lumpur: Ministry of External Affairs, 1965.

Nihon Keizai Shimbun. Industrial Review of Japan 1974. Tōkyō: Nihon Keizai, 1974.

Organization for Economic Cooperation and Development. Policy Perspectives for International Trade and Economic Relations. Paris: Organization for Economic Cooperation and Development, 1972.

United Nations. Conference on Trade and Development. Review of International Trade and Development 1969. (TDB.257, Rev. 1).

United Nations. "Convention on a Code of Conduct for Liner Conferences." (undated) (mimeo).

United Nations. Food and Agriculture Organization. Country Fishery Profiles. 1972.

_____. The State of Food and Agriculture 1973. (C73/2). August 1973.

_____. World Situation and Outlook: Fisheries Problems. (C73/13). September 1973.

United Nations. Third Conference on the Law of the Sea. Economic Implications of Seabed Mineral Development in the International Area: Report of the Secretary General. (A/Conf. 62/25). May 22, 1974.

_____. Tentative Comparative Table of Proposals, Declarations, Working Papers, etc., Relating to Subjects and Issues Allocated to Sub-Committee II. (SCII/WG/Paper #4 with Revision 1 through July 19, 1973).

United Nations. United Nations Statistical Yearbook 1973. New York: 1973.

U.S. Congress. House. Committee on Armed Services. Hearings on Military Posture and H.R. 12564, Department of Defense Authorization for Appropriations for Fiscal Year 1975. Part 2 of 4 (Seapower). 93rd Cong., 2nd Sess. Washington: U.S. Government Printing Office, 1974.

_____. Report 93-1035 Authorizing Appropriations for Military Procurement and Research, Development, Test and Evaluation. 93rd Cong., 2nd Sess. Washington: U.S. Government Printing Office, 1974.

U.S. Congress. House. Committee on Foreign Affairs. The Indian Ocean: Political and Strategic Future. 92nd Cong., 1st Sess. Washington: U.S. Government Printing Office, 1971.

U.S. Congress. Joint Committee on Atomic Energy. Military Applications of Nuclear Technology. Part 2. 93rd Cong., 1st Sess. Washington: U.S. Government Printing Office, 1973.

U.S. Congress. Senate and House Armed Services Committees. CVAN-70 Aircraft Carrier. 91st Cong., 2nd Sess. Washington: U.S. Government Printing Office, 1970.

U.S. Department of Commerce. Japan: The Business-Government Relationship. Washington: U.S. Government Printing Office, 1971.

U.S. Department of the Interior. Minerals Yearbook. 3 volumes. Washington: U.S. Government Printing Office, Annual.

U.S. Department of the Navy. Office of the Chief of Naval Operations. U.S. Lifelines, 09D-P1 (Revised). Washington: June 1971.

U.S. Department of State. "Japanese Defense Policy." Unclassified Document A1158 of December 11, 1970, updated to April 18, 1972.

_____. National Claims to Maritime Jurisdictions. 2nd Revision. Limits in the Seas, No. 36. April 1, 1974.

_____. Sovereignty of the Sea. Geographic Bulletin No. 3. Revised October 1969.

_____. Theoretical Areal Allocations of Seabed to Coastal States . . . . International Boundary Study Series A, Limits in the Seas, No. 46. August 12, 1972.

U.S. Department of State. Chart entitled "World Straits Affected by a Twelve Mile Territorial Sea."

Un-Yu Keizai Kenkyū Center. Un-Yu Keizai Zusetsu Shōwa 49 Nenhan ("Illustrated Book of Transportation Economics, 1974 edition"). Tōkyō: Un-Yu Keizai Kenyū Center, March 1974.

Weyers Flottentaschenbuch. Munich: J. F. Lehmanns Verlag, Annual.

Books

Albers, John P., et al. Summary Petroleum and Selected Mineral Statistics for 120 Countries, Including Offshore Areas. Geological Survey Professional Paper 817. Washington: U.S. Government Printing Office, 1973.

Albion, Robert G. and Pope, Jennie B. Sea Lanes in Wartime. New York: W. W. Norton and Company, 1942.

Alpers, E. A. The East African Slave Trade. East African Publishing House, 1969.

Auer, James E. The Postwar Rearmament of Japan's Maritime Forces. New York: Praeger, 1973.

Axelbank, Albert. Black Star over Japan. Tōkyō: Charles E. Tuttle, 1973.

Ballard, George A. The Influence of the Sea on the Political History of Japan. London: Houghton Mifflin Company, 1921.

_____. Rulers of the Indian Ocean. London: Houghton Mifflin Company, 1928.

Behrens, C. B. A. Merchant Shipping and the Demands of War. U.K. Civil Series. London: Her Majesty's Stationery Office, 1955.

Brodie, Bernard. A Guide to Naval Strategy. 4th ed. Princeton: Princeton University Press, 1958.

_____. Seapower in the Machine Age. Princeton: Princeton University Press, 1941.

_____. War and Politics. New York: The MacMillan Company, 1973.

Brzezinski, Zbigniew. The Fragile Blossom. New York: Harper and Row, 1972.

Burke, William T. Ocean Sciences, Technology, and the Future International Law of the Sea. Athens, Ohio: Ohio University Press, 1966.

Cable, James. Gunboat Diplomacy. London: International Institute for Strategic Studies, 1971.

Clark, Joseph J. and Barnes, Dwight H. Seapower and its Meaning. New York: Franklin Watts, Inc., 1966.

Collins, John M. Grand Strategy. Annapolis: United States Naval Institute, 1973.

Colombos, C. John. The International Law of the Sea. 5th ed. New York: David McKay Company, 1962.

Compass Publications. Sea Technology Handbook Directory 1974. Arlington: Compass Publications, 1974.

Council on National Security Problems. Peace in Asia. Tōkyō: Council on National Security Problems, 1973.

Deakin, Brian M. and Steward, T. Shipping Conferences. Cambridge: University Press, 1973.

Doumani, George A. Ocean Wealth: Policy and Potential. Rochelle Park, N.J.: Hayden Book Company, Inc., 1973.

Ellingworth, Richard. Japanese Economic Policies and Security. Adelphi Papers Number 90. London: International Institute for Strategic Studies, 1972.

Emmerson, John K. Arms, Yen and Power. Tōkyō: Charles E. Tuttle, 1972.

_____ and Humphreys, Leonard A. Will Japan Rearm? Stanford: Hoover Institute on War, Revolution and Peace, 1973.

European Conference of Ministers of Transport. A Study of the Economic Influence of Containerization. Paris: Organization for Economic Cooperation and Development, 1974.

Farago, Ladislas. The Tenth Fleet. New York: Ivan Obelensky, 1962.

Fayle, C. Ernest. The Submarine Campaign to the End of 1916. Seaborne Trade Series, Vol. II. London: John Manning, 1923.

Force in Modern Societies: Its Place in International Politics. Adelphi Paper 102. London: International Institute for Strategic Studies, 1973.

Fox, Grace. British Admirals and Chinese Pirates 1832-1869. London: Kegan Paul, Trench, Trubner and Company, Limited, 1940.

Gamble, John K., Jr. and Pontecorvo, Giulio (eds.). Law of the Sea: The Emerging Regime of the Oceans. Cambridge: Ballinger Publishing Co., 1974.

Gasteyger, Curt (ed.). Japan and the Atlantic World. Atlantic Papers 3. Westmead: Saxon Hill, 1972.

Goldston, Robert. The Civil War in Spain. Greenwich: Fawcett, 1966.

Graham, Gerald S. The Politics of Naval Supremacy. Cambridge: University Press, 1965.

_____. Tides of Empire. London: Queen's University Press, 1972.

Greenwood, Ted. Reconnaissance Surveillance and Arms Control. Adelphi Papers No. 88. London: International Institute for Strategic Studies, 1972.

Gretton, Peter. Maritime Strategy. New York: Praeger, 1965.

Gross, R. O. Studies in Maritime Economics. Cambridge: University Press, 1968.

Halliday, Jon and McCormack, Gavin. Japanese Imperialism Today. New York: Monthly Review Press, 1973.

Hezlet, Arthur. Aircraft and Sea Power. New York: Stein and Day, 1970.

Hill, Charles E. The Danish Sound Dues and the Command of the Baltic. Durham: Duke University Press, 1926.

Howe, John T. Multicrises. Cambridge: Massachusetts Institute of Technology, 1971.

Howeth, Linwood S. History of Communications--Electronics in the United States Navy. Washington: U.S. Government Printing Office, 1963.

Hyatt, A. M. J. Dreadnought to Polaris: Maritime Strategy Since Mahan. Toronto: Copp Clark Publishing Company, 1973.

International Institute for Strategic Studies. Strategic Survey. London: International Institute for Strategic Studies, Annual.

_____. The Military Balance. London: International Institute for Strategic Studies, Annual.

Johnson, K. M. and Garnett, H. C. The Economics of Containerization. Glascow: Social and Economic Survey, November 20, 1971.

Kahn, Herman. The Emerging Japanese Superstate. Englewood Cliffs: Prentice Hall, 1970.

Keith, Barbara A. Fisheries of Peru, 1972-73. Washington: National Marine Fisheries Service, July 1974.

Knudsen, Olav. The Politics of International Shipping. London: Lexington Books, 1973.

Lane-Poole, Stanley. The Story of the Barbary Corsairs. New York: G. P. Putnam's Sons, 1890.

Langdon, F. C. Japan's Foreign Policy. Vancouver: University of British Columbia Press, 1973.

Lewis, Michael. The History of the British Navy. London: George Allen and Unwin, 1959.

Littauer, Raphael and Uphoff, Norman (eds.). The Air War in Vietnam. Boston: Beacon Press, 1972.

Low, Patrick and Yeung Yue-man. The Proposed Kra Canal: A Critical Evaluation and its Impact on Singapore. Singapore: Institute of Southeast Asian Studies, February 1973.

Luttwak, Edward. The Political Uses of Sea Power. Baltimore: Johns Hopkins Press, 1974.

MacIntyre, Donald and Bathe, Basil W. Man-of-War. New York: McGraw-Hill, 1969.

Mahan, Alfred T. The Influence of Seapower Upon History 1660-1783. Boston: Little, Brown and Company, 1941.

_____. The Problem of Asia. London: Kennikat Press, 1970.

Marder, Arthur J. The Anatomy of British Seapower. New York: A. A. Knopf, 1940.

Martin, Laurence W. Arms and Strategy. New York: David McKay Company, Inc., 1973.

_____. The Sea in Modern Strategy. New York: Praeger, 1967.

Mero, John L. The Mineral Resources of the Sea. New York: Elsevier Publishing, 1965.

Miller, Harry. Pirates of the Far East. London: Robert Hall and Co., 1970.

Morley, James William (ed.). Forecast For Japan: Security in the Seventies. Princeton: Princeton University Press, 1972.

Mostert, Noël. Supership. New York: Alfred A. Knopf, 1974.

Nakane, Chie. Japanese Society. Berkeley: University of California Press, 1972.

Osgood, Robert E. The Weary and the Wary. Baltimore: The Johns Hopkins University Press, 1972.

Park, Choon-Ho. Fisheries Issues in the Yellow Sea and the East China Sea. Kingston: Law of the Sea Institute, University of Rhode Island, 1973.

Parry, J. H. The Spanish Seaborne Empire. Middlesex: Pelican Books, 1973.

Polmar, Norman. Aircraft Carriers. New York: Doubleday, 1969.

Pope, Dudley. The Battle of the River Plate. London: William Kimber, 1956.

Rodgers, William L. Naval Warfare Under Oars. Annapolis: United States Naval Institute, 1939.

Roskill, S. W. The Strategy of Seapower. London: Collins, 1962.

Shipping and Trade News (Tōkyō). 25th Anniversary Supplement. Tōkyō: Tōkyō News Service, Ltd., October 25, 1974.

Sokol, Anthony E. Seapower in the Nuclear Age. Washington: Public Affairs Press, 1961.

Southworth, John Van Duyn. The Ancient Fleets. New York: Twayne Publishers, 1968.

Swartztrauber, S. A. The Three Mile Limit of the Territorial Sea. Annapolis: United States Naval Institute, 1972.

Tarling, Nicholas. Piracy and Politics in the Malay World. Singapore: D. Moore, 1973.

Tsipis, Kosta; Cahn, Anne H.; and Feld, Bernard T. (eds.). The Future of the Sea-Based Deterrent. Cambridge: The MIT Press, 1973.

U.S. Naval Institute. To Use the Sea. Annapolis: U. S. Naval Institute, 1974.

United States Strategic Bombing Survey. The Effects of Strategic Bombing on Japan's War Economy. USSBS, Volume 53. Washington: U.S. Government Printing Office, 1947.

Ward, W. E. F. The Royal Navy and the Slavers. London: George Allen and Unwin, 1969.

Weinstein, Martin E. Japan's Postwar Defense Policy 1947-1968. New York: Columbia University Press, 1971.

Wiener, Friedrich. Moderne Seemacht ("Modern Seapower"). Munich: J. F. Lehmanns Verlag, 1972.

Willoughby, Malcolm F. Rum War at Sea. Washington: U.S. Government Printing Office, 1964.

Articles

"Annual Drilling and Production Report." Offshore, June 20, 1974.

Asahi Evening News. "Food and People." Asahi Evening News Series, July 7, 1973 to August 21, 1973 (30 parts).

Athay, Robert E. "The Sea and Soviet Domestic Transportation." U.S. Naval Institute Proceedings, XCVIII (May 1972), 158-177.

Cagle, Malcolm W. "Task Force 77 in Action Off Vietnam." U.S. Naval Institute Proceedings, XCVIII (May 1972), 66-109.

Cohen, Paul. "The Erosion of Surface Naval Power." Foreign Affairs, XLIX (January 1971), 330-341.

Cortada, James W. "Ships, Diplomacy and the Spanish Civil War: Nyon Conference, September 1937." Il Politico, XXXVII (December 1972), 673-689.

Craven, John P. "Industry/Government Relations in Offshore Resource Development." Paper presented at the Fifth Annual Offshore Technology Conference, Houston, April 29-May 3, 1973, Pt. II, pp. 947-49.

Dōba Hajime. "The Japan Sea." American Embassy, Tōkyō. Summary of Selected Japanese Magazines, date unknown. Translation from Chūō Kōron, April 1968.

Emery, S. W. "The United States Effective Control Fleet." U.S. Naval Institute Proceedings, XCVI (May 1970), 158-177.

English, Richard D. and Bolef, Dan I. "Defense Against Bomber Attack." Scientific American, LCXXIX (August 1973), 11-19.

Erell, Shlomo. "Israeli Saar FPBs Pass Combat Test in Yom Kippur War." U.S. Naval Institute Proceedings, C (September 1974), 115-118.

Eto Shinkichi and Miyoshi Osamu. "What is the Axis of Japanese Diplomacy?" American Embassy, Tōkyō, Summary of Selected Japanese Magazines, April 1974. Translation from Keizai Orai, December 1973.

Fraser, Angus M. "Some Thoughts on the Resurgence of Militarism in Japan." Pacific Community (April 1973), 437-451.

Frye, Richard. "The Economics of Unconventional Energy Resources." Marine Technology Society 10th Annual Conference Proceedings, September 22-25, 1974, pp. 455-464.

Greenwood, Ted. "Reconnaissance and Arms Control." Scientific American, 228 (February 1973), 14-25.

Hart, B. H. Liddell. "The Objective in War." A lecture delivered at the U.S. Naval War College, September 24, 1952. Reprinted in To Use the Sea. Annapolis: Naval Institute Press, 1973, pp. 3-9.

Cagle, Malcolm W. "Task Force 77 in Action Off Vietnam." U.S. Naval Institute Proceedings, XCVIII (May 1972), 66-109.

Cohen, Paul. "The Erosion of Surface Naval Power." Foreign Affairs, XLIX (January 1971), 330-341.

Cortada, James W. "Ships, Diplomacy and the Spanish Civil War: Nyon Conference, September 1937." Il Politico, XXXVII (December 1972), 673-689.

Craven, John P. "Industry/Government Relations in Offshore Resource Development." Paper presented at the Fifth Annual Offshore Technology Conference, Houston, April 29-May 3, 1973, Pt. II, pp. 947-49.

Dōba Hajime. "The Japan Sea." American Embassy, Tōkyō. Summary of Selected Japanese Magazines, date unknown. Translation from Chūō Kōron, April 1968.

Emery, S. W. "The United States Effective Control Fleet." U.S. Naval Institute Proceedings, XCVI (May 1970), 158-177.

English, Richard D. and Bolef, Dan I. "Defense Against Bomber Attack." Scientific American, LCXXIX (August 1973), 11-19.

Erell, Shlomo. "Israeli Saar FPBs Pass Combat Test in Yom Kippur War." U.S. Naval Institute Proceedings, C (September 1974), 115-118.

Eto Shinkichi and Miyoshi Osamu. "What is the Axis of Japanese Diplomacy?" American Embassy, Tōkyō, Summary of Selected Japanese Magazines, April 1974. Translation from Keizai Orai, December 1973.

Fraser, Angus M. "Some Thoughts on the Resurgence of Militarism in Japan." Pacific Community (April 1973), 437-451.

Frye, Richard. "The Economics of Unconventional Energy Resources." Marine Technology Society 10th Annual Conference Proceedings, September 22-25, 1974, pp. 455-464.

Greenwood, Ted. "Reconnaissance and Arms Control." Scientific American, 228 (February 1973), 14-25.

Hart, B. H. Liddell. "The Objective in War." A lecture delivered at the U.S. Naval War College, September 24, 1952. Reprinted in To Use the Sea. Annapolis: Naval Institute Press, 1973, pp. 3-9.

Hauser, Hubert K. J. "Desalinization: The Sea as a Source of Fresh Water." Underwater Journal. February 1973, 9-17.

Hayes, John D. "The Sea 1967-72." U.S. Naval Institute Proceedings, XCIX (May 1973), 299-310.

Herrington, W. C. "Operation of the Japanese Fishery Management System" in Tussing, A. R., Morehouse, T. A. and Babb, J. D. Jr. (eds.), Alaska Fisheries Policy. University of Alaska, 1970.

Hill, J. R. "Maritime Forces in Confrontation." Brassey's Annual 1971. New York: MacMillan, 1971, pp. 13-36.

_____. "The Role of Navies." Brassey's Annual 1970. London: William Clowes and Sons, Ltd., 1970.

Hosoya Chihiro. "How to Conduct Diplomacy Toward Three Poles." American Embassy, Tōkyō, Summary of Selected Japanese Magazines, June 1973, 1-28. Translation from Chūō Kōron, June 1973.

Huntington, Samuel P. "After Containment: The Function of the Military Establishment." The Annals, Vol. 406 (March 1973), 1-16.

Ito Yasuto. "Effects of Soviet Ocean Strategy on Our Country's Defense." Cited in American Embassy, Tōkyō, Daily Summary of the Japanese Press, August 15, 1973, pp. 11-14. Translation from Mainichi, August 10, 1973.

"Jieitai no Sōbi to Bōei Sangyō no Jittai" ("Actual Condition of Self-Defense Force Equipment and Defense Production"). Nihon no Bōei (Defense of Japan). Tōkyō: Sangyō Seisaku Kenkyūkai, September 15, 1974, pp. 85-98.

Joseph, James and Klawe, Witold L. "The Living Pelagic Resources of the Americas." Ocean Development and International Law, II (Spring 1974), 37-64.

Kaihara Osamu. "Study on Realistic National Defense." Mainichi Daily News, January 30 to February 5, 1973.

Kasputys, Joseph. "The Evolving Role of the Merchant Marine as a Determinant of Seapower." Third International Seapower Symposium. Newport: U.S. Naval War College, 1973.

Kaul, Ravi. "The Indo-Pakistani War and the Changing Balance of Power in the Indian Ocean." U.S. Naval Institute Proceedings, XCIX (May 1973), 172-195.

Keene, Donald. "The Short, Happy Life of Japan as a Superpower." New York Times Magazine. March 3, 1974, p. 19.

Kitamura Kenichi. "Kokubō Kaigi Muyōron" ("Comment on the Ineffectiveness of the National Defense Council"). Parts I and II. Gunji Kenkyū, #5 and 6, 1974.

Kotani Hidejiro. "Squarely Look at the Basis of National Defense." American Embassy, Tōkyō, Summary of Selected Japanese Magazines, May 1972. Translation from Jiyu, April 1972.

Krutein, Manfred G. "Ocean Mining." U.S. Naval Institute Proceedings, XCV (May 1969), 135-140.

Kusayanagi Daizo. "A Kingdom of Bureaucrats: The Finance Ministry." American Embassy, Tōkyō, Summaries of Selected Japanese Magazines, July 1974, pp. 6-20. Translation from Bungei Shunji, July 1974.

Lelyveld, John. "The United States and South Asia." New York Times. June 24-26, 1974.

Littman, Bruce. "How the 'Shikumisen' Deal Works." Seatrade. December 1973, pp. 137-138.

Long, Jay H. "The Paracels Incident: Implications for Chinese Policy." Asian Affairs, 4 (March/April 1974), 229-239.

Low, Patrick. "New Dimension to the Oil Crisis." Petroleum News Southeast Asia. February 1974, pp. 19+.

Luard, Evan. "Who Gets What on the Seabed." Foreign Policy, 9 (Winter 1972-73), 132-147.

Matsueda Tsukasa and Moore, George. "Japan's Shifting Attitudes Towards the Military: Mitsuya Kenkyu and the Self-Defense Forces." Asian Survey, VIII (September 1965), 614-625.

McAleer, John. "Multi-Use Potential of Offshore Facilities, Artificial Islands and Platforms in Bays and Estuaries." Marine Technology Society 10th Annual Conference Preceedings, September 23-25, 1974, pp. 697-714.

MccGwire, Michael. "The Submarine Threat to Western Shipping." In Moulton, J. L., British Maritime Strategy in the Seventies. London: Royal United Services Institute, 1969.

McWethy, Patricia J. "Process for Determining the Federal Role in Stimulating Development of Ocean Energy Technologies." Marine Technology Society 10th Annual Conference Proceedings, September 23-25, 1974, pp. 465-481.

"The Militarization of the Deep Ocean." SIPRI Yearbook 1969-70. Stockholm: Stockholm International Peace Research Institute, 1970, 92-153.

Miller, George H. "Necessary for the National Defense." Shipmate (May 1974).

Miwa Kimitada. "Sino-U.S.-Japan Relations Will Cause Illusion." American Embassy, Tōkyō, Summary of Selected Japanese Magazines, September 1973. Translation from Jiyu, August 1973.

Miyoshi Shuichi. "Japan's Resource Policy at a Turning Point." Japan Quarterly, XVIII (July-September 1971), 281-287.

Mulquin, J. J. "ARAPAHO--Emergency Helo Cover for Merchantmen." U.S. Naval Institute Proceedings, XCIX (November 1973), 113-117.

_____. "The ARAPAHO System and Its Implications for Future Ship-Aviation Concept Development." Naval Engineers Journal, LXXXV (October 1973), 25-34.

Nagasu Kazuji. "The Super-Illusions of an Economic Superpower." Japan Interpreter, IX (Summer-Autumn 1974), 149-164.

Namiki Nobuyoshi. "Japanese Industry's Competitive Power Examined." Economist (Tōkyō), July 2, 1974.

"The National Territory." New Philippines (Manila), February 1974.

Nihon Keizai Shimbun. "Defense Industry in Japan." Japan Economic Journal International Weekly, July 4-December 19, 1972 (25 parts).

Niu Sien-chong. "The Resurgence of Japanese Sea Power." NATO's Fifteen Nations, October-November 1971, pp. 71-78.

O'Connell, D. P. "Can the Navy Plan for Peace?" New Scientist (U.K.), October 25, 1973, p. 257.

_____. "International Law and Contemporary Naval Operations." British Yearbook of International Law 1970. London: Oxford University Press, 1971, 19-85.

Ohmura Tamotsu. "The Status of Marine Development in Japan." Marine Technology Society Journal, VIII (January 1974), 29-33.

Okita Saburo. "Natural Resource Dependency and Japan's Foreign Policy." Foreign Affairs, LII (July 1974), 714-724.

Okumiya Masatake. "Proposal for a Well-Balanced National Security." In American Embassy, Tōkyō, Summary of Selected Japanese Magazines, June 1974. Translation from Shin Bōei Ronshū, March 1974.

Osgood, Robert E. "U.S. Security Interests in Ocean Law." Ocean Development and International Law, II (Spring 1974), 1-36.

Pardo, Arvid. "Who Will Control the Seabed?" Foreign Affairs, XLVII (October 1968), 123-137.

Park Choon-Ho. "Oil Under Troubled Waters: The Northeast Asia Seabed Controversy." Harvard International Law Journal, XIV (Spring 1973), 212-260.

Pella, Vespasien. "la Répression de la Piraterie." Recueil des Cours, XV (1926-V).

Ponte,Lowell. "Nippon Goes Nuclear." The Progressive, September 1973, pp. 32-34.

Reitzer, William. "Mahan on the Use of the Sea." Naval War College Review, XXV (May-June 1973), 73-82.

Research Institute for Ocean Economics (Tōkyō). "Waga Kuni Kaiyō Sangyō no Gonen" ("Five Years of Our Country's Ocean Industry"). Issue title for Kaiyō Sangyō Kenkyū Shiryō (Ocean Industry Research Materials), V (Spring 1974).

Roesnadi, O. Sutomo. "ASEAN and the Great Powers." The Indonesian Quarterly, I (July 1973), 15-25.

Salmon, Jack D. "Japan as a Great Power: The Military Context and Policy Options." Japan Interpreter, VII (1972), 396-408.

Sansone, Wallace T. "Domestic Shipping and American Maritime Policy." U.S. Naval Institute Proceedings, C (May 1974), 162-177.

Saunders, George D. "Land Bridge Comes of Age." U.S. Naval Institute Proceedings, XCIX (December 1973), 38-43.

Schratz, Paul. "The Nuclear Carrier and Modern War." U.S. Naval Institute Proceedings, XCVIII (August 1972), 18-25.

Scrivener, Desmond. "Escort Ships--An Alternative Solution?" International Defense Review, #4/1973, 460-463.

_____. "Weapons for the General Purpose Escort." International Defense Review, #3/1973, 331-336.

Sekino Hideo. "Japan and Her Maritime Defense." U.S. Naval Institute Proceedings, XCVII (May 1971), 98-121.

Senō Sadao. "A Chess Game with No Checkmate: Admiral Inoue and the Pacific War." Naval War College Review, XXVI (January-February 1974), 26-39.

"Shinkaitei Kōbutsu Shigen Kaihatsu Kyōkai ga Hassoku" ("Deep Seabed Mineral Resources Association is Started"). INSPACE, August 1974, pp. 2-6.

Shinohara Hiroshi. "U.S.-China Rapprochement and Defense of Japan." American Embassy, Tōkyō, Summary of Selected Japanese Magazines, May 1972. Translation from Chūō Kōron, October 1971.

Shiratori Rei. "U.S.-Japan Relations Headed Toward Dangerous and Unstable Period." American Embassy, Tōkyō, Summary of Selected Japanese Magazines, June 1974. Translation from Economist, June 4, 1974.

Shore, J. C. and Reeds, C. B. "Subsea Oil and Completion." Marine Technology Society 10th Annual Conference Proceedings, September 23-25, 1974, pp. 547-555.

Simcock, B. L. "Environmental Pollution and the Citizen's Movements." Area Development in Japan, 5. Tōkyō, 1972.

Soesastro, M. Hadi. "Japan and Southeast Asia: A Regional or Global Question?" The Indonesian Quarterly, I (July 1973), pp. 26-35.

Stockwin, J. A. A. "Continuity and Change in Japanese Foreign Policy." Pacific Affairs, XLVI (Spring 1973), 77-93.

Suenaga Y. "Japan Wants a Voice in Pacific Naval Balance." Part 8 of a Series on U.S.-Japan Relations in Yomiuri (English Edition), January 31, 1972.

Surrey, John. "Japan's Uncertain Energy Prospects: The Problem of Import Dependence." Energy Policy, II (September 1974), 204-230.

Takane Masaaki. "Historical Structure of Japanese Bureaucracy--Bureaucracy and Modernization in Japan." American Embassy, Tōkyō, Summaries of Selected Japanese Magazines, October 1974. Translation from Chūō Kōron, September 1974.

Thompson, Robert P. "Establishing Global Traffic Flows." Journal of Navigation, XXV (October 1972), 483-495.

Tsukudo Tatsuo, Vice Admiral, JMSDF (Ret.). "Defense of Territory." Translation in Articles from Staff College Review 1971-1972. Tōkyō: Maritime Self-Defense Force Staff College, undated, pp. 51-54.

_____. "Nihon no Kokubō ni Okeru Shōkei Keikantei no Igi" ("Role of Light Naval Craft in Defending Japan"). Sekai no Kansen, 208 (December 1974), 86-89.

_____. "Sea Power and Our Defense in the New Era." Translation in Articles from Staff College Review 1971-1972. Tōkyō: Maritime Self-Defense Force Staff College, undated, pp. 65-71.

Uchida Kazutomi. "Japan's National Defense and the Role of the Maritime Self-Defense Force." Pacific Community (October 1974), pp. 38-54.

_____. "The Rearmament of the Japanese Maritime Forces." Naval War College Review, XXVI (November-December 1973), 41-48.

"Verification Using Reconnaissance Satellites." SIPRI Yearbook 1973. Stockholm: Stockholm International Peace Research Institute, 1973, pp. 60-101.

Wakaizumi Kei. "Japan's Dilemma: To Act or Not to Act." Foreign Policy, 16 (Fall 1974), 30-47.

"War Logistics and the Freight Container." Jane's Freight Containers 1973-74. London: Sampson Low, Marston, 1973.

Wechsler, L.; Brown, C. E.; and Sundaram, T. R. "Engineering Analysis of Systems for Extracting Useful Energy from the Sea." Marine Technology Society, 10th Annual Conference Proceedings, September 23-25, 1974, pp. 483-499.

Weinstein, Martin E. "The Strategic Balance in East Asia." Current History, LXV (November 1973), 193+.

Wells, Linton II. "Japan and the United Nations Conference on the Law of the Sea." Ocean Development and International Law, II (Spring 1974), 65-91.

Wenk, Edward, Jr. "The Physical Resources of the Oceans." Scientific American (September 1969), pp. 82-91.

White, R. M. "Our Changing Ocean Priorities." Marine Technology Society Journal, VI (September-October 1972), 3-5.

Wilson, Desmond P. "Evolution of the Attack Carrier: A Case Study in Technology and Strategy." U.S. Congress, Senate and House Armed Services Committees, CVAN-70 Aircraft Carrier. 91st Cong., 2nd Sess., 1970.

Wohlstetter, Albert. "Japan's Security: Balancing after the Shocks." Foreign Policy, 9 (Winter 1972-73), 171-190.

Yasuda M. [pseudonym]. "No Drastic About-Face in Security Policy." Yomiuri (English Edition), January 6, 1971.

Young, Elizabeth. "Arms Control and Disarmament in the Ocean." In Borgese, Elizabeth Mann (ed.), Pacem in Maribus. New York: Dodd, Mead & Co., 1972), 266-284.

Periodicals

Those magazines consulted on a regular basis included:

Asian Survey
Aviation Week and Space Technology
Foreign Affairs
Foreign Policy
International Defense Review
Japan Interpreter
Japan Quarterly
Marine Technology Society Journal
Naval Engineers Journal
Naval War College Review
Offshore
Pacific Affairs
Pacific Community
Petroleum News Southeast Asia
Sea Power
Sea Technology (formerly Undersea Technology)
Sekai no Kansen (Ships of the World)
U.S. Naval Institute Proceedings
Zosen

Newspapers

The most frequently read newspapers were:

Asahi Evening News
Japan Times
Mainichi Daily News
The New York Times
Nihon Keizai Shimbun International Weekly
Stars and Stripes (Pacific)
The Washington Post
Yomiuri (English)

Japanese newspapers and magazines mostly were reviewed through the publications of the Translation Section of the American Embassy, Tōkyō, and Miss Nakai Yoko.

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